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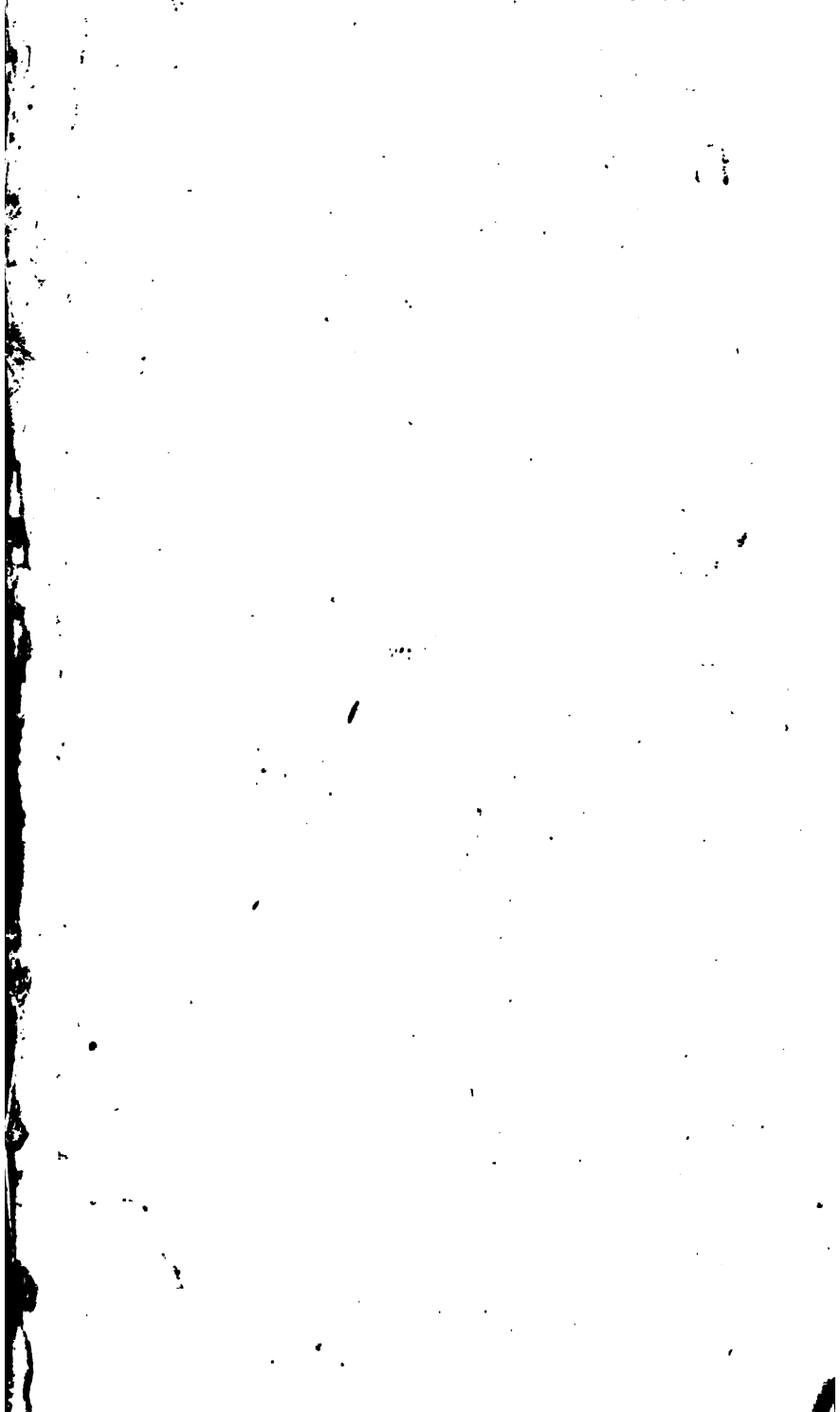
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THE GIFT OF  
J. Herbert Russell







**JOURNAL**

OF

**THE SENATE**

OF THE

**COMMONWEALTH OF PENNSYLVANIA**

OF THE

**SESSION 1828 '29.**

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**VOL. II.**

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CONTAINING

**THE APPENDIX**



**JOURNAL**  
**OF**  
**THE SENATE**

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**CONTAINING**  
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**HARRISBURG, PA.**  
**S. C. STAMBAUGH, PRINTER.**  
**1828.**

## GOVERNOR'S MESSAGE.

*To the Senate and House of Representatives of the Commonwealth  
of Pennsylvania.*

GENTLEMEN,

I have the honor of transmitting to you a copy of a letter from the president of the board of the canal commissioners, together with a copy of the report, with the documents accompanying the same, made in obedience to law.

J. ANDW. SHULZE,

*Harrisburg, December 13, 1828.*

# REPORT, &c.

OFFICE OF THE CANAL COMMISSIONERS,  
*Harrisburg, December 11, 1828.*

SIR,

By direction of the canal commissioners, I have the honor here, with to enclose their annual report.

Very respectfully

Your most obedient servant,

DANIEL MONTGOMERY.

His excellency Governor SHULZ.

The canal commissioners of Pennsylvania, respectfully  
submit the following

## REPORT:

By their annual report on the 25th December, 1827, it appeared, that the amount of canal then under contract and in progress towards completion was about 212 miles, composed of the following divisions:

Western division from Pittsburg, up the Allegheny, Kiskeminetas and Conemaugh to Blairsville,	80 miles.
Part of French creek feeder, from Bemis' mill, to Conneaut outlet,	9 miles.
Eastern division from the mouth of Swatara, to that of Juniata,	24 miles.
Juniata division, from a point near the mouth of Juniata to Lewistown,	44½ do.
Susquehanna division, from a point near the mouth of Juniata to Northumberland,	37 do.
Delaware division, from Bristol to Taylor's ferry,	18 do.
	<hr/> 212½ miles.

313006

This aggregate is increased by about 4½ miles, added to the Juniata and Susquehanna divisions in order to unite them at a convenient point on Duncan's island, making the whole amount contracted for, under the authority of the acts of 1826 and 1827, about 217 miles.

Since the report alluded to was made, the work on the several divisions has been steadily prosecuted. Considerable delay was produced by the prevalence of high water, from an early period last fall to the month of June last, and severe inconvenience has also been felt, from sickness on the Juniata, Susquehanna and Delaware. It will appear nevertheless from the following sketch of the state of these divisions, that a great amount of work has been accomplished.

The whole western division from the out-let locks on the Allegheny to Blairsville is so far completed, that it will unquestionably be navigable at the opening of the spring. From the salt works fifty miles above Pittsburg to the Kiskeminetas feeder, the line is in actual use, and water is now flowing through that feeder, to supply the whole distance below. From the salt works upwards to Blairsville, nothing remains which may not easily be finished during the present winter.

The nine miles of the French creek feeder, are in a similar state of forwardness. One or two culverts, four bridges, the fencing of the line and a very small quantity of excavation and inside wall, are the only matters requiring further attention.

The amount of work done on the Juniata, between Lewistown and the mouth of Juniata, may be regarded as equal to two-thirds of the whole. This line has suffered from sickness more severely than any other in the state, and it experienced moreover a great scarcity of hands, in the earlier parts of the season. Those difficulties being now entirely removed, its completion may be expected before the 1st of August.

The Susquehanna division, from the mouth of Juniata to Northumberland, is considered as three-fourths completed. Like the Juniata line, it was delayed by the scarcity of workmen in the early summer months, and by the sickness incident to our river valleys. At its present rate of progression, it cannot fail of completion by the first of July next.

The eastern division is entirely finished, except the two sections at Peter's mountain, (on which about two months work remains,) and the aqueduct embankment at Stony and Clark's creeks. It is confidently believed, that the navigation, from the mouth of Juniata to Middletown, will be in actual use, before the rising of the legislature.

The contracts existing on the Delaware, at the date of the last report, extended only to the excavation and canal formation of eighteen miles, and included no work of wood or stone. All these contractors have been satisfactorily completed, and further contract have been made, for the locks, culverts, aqueducts and bridges on that portion of the line, to be executed early in the next season.

In executing the act of the last session of the legislature making further appropriations for the Pennsylvania canal and directing additional contracts to be made, the board acted on the principle that the money thus placed at their disposal should as far as practicable be devoted to the old lines, and that the new contracts should be made so late in the season, as to constitute no serious charge upon the existing appropriation.

At a meeting of the board in March, it was deemed advisable, to place under contract seven additional miles of the Delaware division, which was accordingly done on the 20th May following.

No arrangement having yet been made with the state of New-Jersey for the use of the Delaware, and it being still uncertain from what quarter the canal might ultimately be filled with water, the engineer was directed to re-examine the whole line from New-Hope to Easton, and so to adjust its location as to admit of a full and easy supply, whatever might be the result of a negotiation with New Jersey.

This was satisfactorily effected to a point about seven miles below Easton, from which the location must entirely depend upon the question, whether the Delaware or the Lehigh be used as a feeder. The board accordingly determined at their meeting in August, to place under contract twenty eight and a half miles from New-Hope upwards, and to reserve the remaining distance until the result of the negotiations pending with New-Jersey should be known. Of this amount 18 miles were contracted for on the 18th of September, and ten and a half miles more on the 18th of November. The excavation and canal formation of the first seven miles of the Delaware line, above Taylor's ferry are nearly completed. The next eighteen miles are actively advancing, and in the remaining ten and a half miles the contractors are now commencing their operations. The payments already made on the new line, amount to \$28,285 33. It is the intention of the board to extend their contracts to Easton as early as possible next spring.

At the meeting of the board in March last, Charles T. Whippo, Esq. was appointed an engineer and was directed to commence the location of a canal line upon the north branch of the Susquehanna. Having selected the Nanticoke falls, 54 miles above Northumberland, as the proper place for taking a feeder, he continued his line 27 miles downwards, and reported it to the board at their meeting in June. His plan being approved, that portion of the canal was placed under contract, on the 24th of July. At the meeting in August, the remaining distance of 27 miles to Northumberland was located by the board, and the superintendent was directed to enter into contracts for 18 miles, so as to make up the 45 miles authorised by law. The work on this division has advanced with great spirit, and should the legislature authorise the construction of the remaining nine miles, estimated to cost only 37,000 dollars, a perfect navigation of 54 miles on the North branch, laying open





estimates and descriptions of the work. At each end of the road an inclined plane and stationary engine will be required to reach the river level. From the inclined plane in the Schuylkill, which it is contemplated to fix near the residence of the late judge Peters, the rail way will cross that river by a bridge, and pursuing the line of the old Union canal, will reach the city of Philadelphia at the intersection of Broad and Vine streets. The board have reason to believe, that the selection of this line, has been skilful and judicious, and that the mode of entering the city of Philadelphia, is preferable to any other proposed. They have, therefore, confirmed the whole location and in compliance with law, have directed the road formation of 40 miles to be placed under contract.

It is believed, that a line of railway, leading to a large city, cannot exert its full capability, without the construction of branch lines near its point of termination, by means of which the trade may be conveniently diffused. It would be difficult for the board to fix the localities of such branch lines, as they must occupy in some degree the streets of the city, and otherwise interfere with its internal regulations. They have regarded it however, a great advantage attending the present location, that by keeping the level of the summit between the Schuylkill and the Delaware, it admits of an easy extension to the latter river through the city or adjoining districts, and it is recommended that every facility for such extensions be afforded either to the corporations of the city and districts, or to associations of individuals formed for the purpose.

While considering this subject, they have been struck with the importance in a commercial point of view, of a line from the stationary engine near Judge Peters', to some point on the Schuylkill, affording a complete communication with the ocean. As such a line must follow the west side of the river, the difficulty before suggested would not be felt but for want of authority under the existing law, the board would be prepared to direct its construction.

A particular and very extensive examination of the Allegheny mountain, with a view to a portage between the Juniata and Conemaugh canals, has been made this season by Mr. Nathan S. Roberts. A number of projected routes have received attention, and a vast amount of useful information is embodied in his report, the results however are not so conclusive as to justify a decision, until some additional investigations shall have been made.

Mr. Roberts having accepted employment elsewhere, Moncuro Robinson, Esq. an engineer of high reputation, has been appointed in his place. He will be furnished with the notes and drafts of Mr. Roberts, and as early as possible will commence his enquiries, with a view to the construction of a railway, composed of lifts and levels, and also of a Mac-Adamized road, of easy graduation between the two canals. This latter examination is dictated from a belief, that such a turnpike will be found indispensable for the accommodation of travellers, having business on the canal and railway, and not from a wish to place it in competition, with the first

named mode of improvement as a means of transportation for merchandise and produce.

The surveys authorised by law for a rail road line from "some point on the Lehigh and Schuylkill canal to Sunbury, Danville and Catawissa," and for canals and railways, between the north branch by Nescopeck valley, and other projected routes, have been ably executed by Mr. Robinson within the present season. For an account of operations so extended embracing the whole summit, between the waters of the Susquehanna and the Delaware, as far north as the Lackawana, and branching off into innumerable lateral examinations, recourse must be had to the report of Mr. Robinson annexed hereto. Among other results it is ascertained that a canal by way of Nescopeck valley is entirely practicable, although the amount of lockage will prove a serious inconvenience. It appears also that from Catawissa a railway suited to locomotive engines, except at the summit where stationary power must be employed, may be carried either through Quakake valley to the Lehigh, by the Schuylkill to Pottsville or the head of Little Schuylkill to its mouth, and that a railway conveniently adjusted for the use of horse power may be made from Pottsville to Sunbury or Danville. Particular drafts and estimates of several of these routes will be forwarded to the legislature, as soon as they can be prepared. Agreeably to the law of last session a further examination of the proposed line of canal from Easton along the Delaware to Carpenter's point, has been made by Major Douglass, and two estimates have been furnished, one for a canal of the same dimensions with that below Easton, and the other for a canal of reduced size as described in the law. The cost of the larger improvement is estimated at an average of \$13,309 per mile, and of the smaller at \$11,678. The last mentioned sum having fallen below the maximum fixed by the legislature, a resolution determining the location of the line has been passed by the board, but no part has been placed under contract.

At the meeting of the board in March last, Mr. Edward F. Gay, late engineer of the Conestoga navigation, was selected to execute the surveys with a view to canals and slackwater navigation directed to be made on the Allegheny, Monongahela and Ohio rivers. His instructions embraced the various modes of improvement mentioned in the act of the last session of the legislature, and a full report on each of these subjects referred to his care, is now presented. The cost of a navigation, by dams, locks and ponds, adapted to steam boats along the Allegheny river, from the mouth of French creek to that of Kiskeminetas, (the plan preferred by Mr. Gay,) is estimated at \$923,098, or about \$10,000 a mile for 93½ miles. He represents the construction of a canal along the Monongahela as almost impracticable, but that river may be advantageously improved in many places by dams and locks, at an expense of \$265,000. The cost of a steam boat navigation from Pittsburg down the Ohio to Beaver by dams and locks, is estimated at \$221,298.

## CANAL REPORT.

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At a late period of the present season, Mr. William R. Hopkins, an engineer, recently in the service of the state of Ohio, was engaged to ascertain the practicability of a rail road from the west end of the Harrisburg bridge to Chambersburg, and from thence by way of Gettysburg to York. His labours in the field are now about completed, and his report, as soon as received, will be forwarded to the legislature.

In this sketch of operations within the past year, it has been the object of the board to avoid all unnecessary detail. For such further particulars as may be desired, reference is made to the numerous documents annexed hereto.

For the sake of brevity also, they have deemed it expedient, to present at a single view, a list of all the contracts which will claim attention within the coming year. As the eastern and western divisions are already so far completed, that they cannot be the source of much additional expenditure, after the work already done shall have been paid for, they are left out of the account. The other lines, at a liberal estimate, will stand as follows:

Delaware,	520,000
North Branch,	330,000
West Branch,	151,000
Juniata, (lower line)	315,000
Do. (upper line)	890,000
Susquehanna division, including dam and bridge over the river,	280,000
French creek feeder,	76,000
From Middletown to Columbia,	245,000
Conemaugh, from Blairsville to Johnstown,	500,000
Part of the Pennsylvania rail road,	200,000

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**\$ 3,511,000**

It is estimated from the experience of former seasons, that supposing the utmost activity to be used upon all the lines within the approaching year, at least \$700,000 of the aggregate exhibited by this statement will remain to be expended in the year 1830, so that the amount required for the operations of next year, making full allowance for the sums yet to be paid on the eastern and western divisions cannot materially exceed \$3,000,000, and may probably fall short of that sum. Inasmuch however as the faith of the commonwealth is already pledged for the contracts made, it will probably be desirable, that a precise limit should not be fixed, and that full scope should be given for the execution of such contracts, as early as possible.

That this statement presents a scene of operations of great extent, is readily admitted. But it is equally certain, that a vigorous effort for another year, will so reduce its magnitude, as to place the success of the whole system of internal improvement beyond a reasonable doubt. By the month of August next, 47 miles on the Juniata, 41 miles more on the Susquehanna, and 29 miles on the

Delaware will certainly be completed, reducing the whole distance to 184 miles. By the month of December next, the north and west branch divisions may be ready for navigation, the Delaware line to Easton will be nearly completed, and the obligations of the commonwealth for lines now under contract will have been reduced to a sum considerably short of one million of dollars.

Upon the view thus presented the board would propose a system of proceeding, recommended at once by its extreme simplicity, its tendency to sustain the confidence of the public, and the certainty it affords, that the whole scheme of internal improvement adopted by the states embracing a complete communication from Philadelphia to Pittsburg and Lake Erie, and the projected lines along the Susquehanna and its branches, and the Delaware, may be triumphantly executed within a reasonable period.

It is based upon the supposition, that the whole expenditure of the coming year will be \$ 3,000,000 which added to \$ 3,300,000 already borrowed make \$ 6,300,000, and also that the income from the eastern and western divisions next year will equal the interest of the excess of the canal debt above \$6,000,000 at the end of that year. Upon these suppositions it is proposed:

1. That the revenue at present applicable to the interest of canal loans be so increased by legislative provisions, as to produce annually the interest of six millions of dollars, independently of all receipts from the canals.

2. That all further extension of the line of improvements, beyond the cost of six millions of dollars shall be made by loans, upon the credit of receipts from the finished canal, and shall be limited by the sufficiency of those receipts to discharge the interest of such further loans.

3. That as the finished portions of the canal increase in revenue, so as to exceed the interest of the loans, to which they are pledged, the excess shall be applied as a sinking fund, or as a fund for the making of other valuable improvements, not included in the present system.

The board in offering these suggestions, desire it to be understood, that they mean not to diminish the extent of the system, as already adopted, but on the contrary, that they calculate upon its early and effectual completion. They entertain no doubt, that the receipts from canal tolls within the year 1830 will justify the expenditure of three millions that year if such a sum be required, and will increase from that time in a ratio fully equal to the further wants of the commonwealth in executing its system. In proof of this they remark, that during the whole of next season 103 miles of valuable canal will be in full operation; that at the commencement of the year 1830 the quantity navigable will be 290 miles, and that within the last mentioned year it will be extended to 350 miles, embracing sections, equalled by none other in promise and importance.

They have based their calculations as to the practicability and

consequences of the plan proposed, upon facts, which they regard as established, and they look to its adoption, or that of some other corresponding in principle, however different in detail, as essential to the preservation of public confidence, and the ultimate success of the improvements begun.

By the report of the board in December last, the amount of contracts then existing was estimated at about \$2,050,000, and this amount was soon after increased to about \$2,350,000, by additions on the Susquehanna and Juniata division, which included a bridge across the Susquehanna, an aqueduct over the Juniata, a set of out-let locks and about 4 miles of canal.

To meet these contracts, the means of the board have been

1, The balance then remaining of the appropriation of 1827, about	\$ 400,000
Appropriation of 1828, 2,000,000	

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2,400,000

Of this sum however, \$150,000 have been diverted to other objects. The expenditures on new lines subsequently put under contract, amount to \$110,000, and about \$40,000 have been drawn from the treasury, for surveys, damages, expenses of the board and other contingent items.

This statement has been made to account for the fact, which has in a different form, been communicated to the legislature, that the appropriation of 1828 is already exhausted, and that the exigencies of the service call for a further and immediate supply. Further particulars as to the precise objects to which the funds have been applied, will appear by the reports of the several acting commissioners and superintendents annexed hereto.

One or two subjects remain to be presented for consideration.

At the present session of the board, a statement has been made from a quarter entitled to great respect, that a communication between the Pennsylvania canal along the west branch, with the river at a point opposite Lewisburg, will be productive of convenience to a large section of valuable country. The board appreciate fully the importance of the district, which this arrangement would accommodate, and they do not hesitate to recommend the subject to the consideration of the legislature. What may be the precise cost of such a communication, and upon what plan it might most easily be effected, they are not at this time prepared to say, but they apprehend no serious difficulty upon either point, if an opportunity be given for proper examination.

In a number of instances the mode of constructing the lines of improvement have already, or will hereafter produce a large amount of water power, which may be disposed of on profitable terms to the commonwealth, without injury to the public works. The dam across the Susquehanna at Shamokin, and the various dams along the Conemaugh, Kiskeminetas and Juniata, are prominent examples. At present no available power to sell or lease such water rights, exist in the board, and as the time is approach-

ing, when they may easily be made a source of revenue, the subject is urged upon the attention of the legislature.

Under the existing laws, authorising the commissioners to make the necessary contracts for the construction of canals, a doubt has arisen at the accounting department, whether contracts for repairs done to the work, after it has been taken off the hands of the original contractor, can be considered as included. A modification of the law is therefore asked, which will enable the board promptly to make and pay for such repairs, as may be required on the lines of canal. Such lines cannot be regarded as complete, until the water has been admitted, and the accidents attending a first trial of their strength have been remedied. In general, these repairs will be made by the acting commissioner or superintendant having charge of the nearest unfinished line. In one instance however, it has already occurred, that the acting commissioner could not find time for this additional duty. The board have therefore, appointed a supervisor to take charge of the western division, as far as completed, and to direct the making of all necessary repairs.—The same necessity may probably exist in other quarters before the close of the year, and it will be convenient that such officers have power to obtain the funds required immediately from the treasury. It is proposed therefore, that all supervisors of canal lines, who may be appointed by the board, shall give bond to the commonwealth, in the sum of \$10,000, and shall be permitted to draw money to that amount, under similar restrictions, and with obligations to account, similar to those prescribed in the case of acting commissioners and superintendants.

Signed by order of the Board,  
DANIEL MONTGOMERY,  
*President,*

Attest,  
JOSEPH M'ILWAINE, *Secretary,*  
*Canal Office.*

*Harrisburg, December 11, 1828.*

**Series 1.****DOCUMENTS RELATING TO THE WESTERN DIVISION****No. 1.**

*Report of Abner Lacock, acting commissioner on the Western Division.*

**To the Board of Canal Commissioners.**

GENTLEMEN,

The superintendence of the line of canal from Pittsburgh to Johnstown, a distance of about one hundred and ten miles, and the exploration of the country and location of a rail road, from the latter point to Frankstown, on the Juniata, a distance of about fifty miles, has been committed to my care. It would swell a report beyond the necessary limits, to go into a detail of the operations upon a line of such magnitude and extent: for that information, the board is referred to the reports of Messrs. Roberts, Harris and Livermore, engineers on the respective branches of the work.

The whole sum expended by me, in the progress and construction of those works, has amounted to \$1,401,591 97. And the amount of money received from the treasurer of the canal fund, has been \$1,324,609 40—leaving a balance in my favor of \$76,782 57. Since my last report, I have received out of the treasury \$814,109 40; and of that sum I have paid, for work done under contracts on the aqueduct, over the Allegheny river at Pittsburg, the tunnel through Grant's Hill, the lock, embankments and other works, connected with that branch of the canal, the sum of \$80,863 35.

The expenditure upon the line from the Allegheny river, including the river lock and harbour, to the mouth of the Kiskiminetas, a distance of about thirty miles, is equal to \$206,818 59.

From the Allegheny line, including the aqueduct across that river, and proceeding up the Kiskiminetas, to the head of the salt works, a distance of about twenty miles, there has been expended \$228,571 66.

From the salt works to the out-let lock above Blairsville, about twenty-seven miles, the sum of \$333,420 17.

The foregoing expenditures do not include the several sums paid for damages, incidental expenses and superintendence. The line of canal from the out-let lock to Johnstown, was put under contract on the 20th of October last, so far as regards the construction of the canal, excepting the locks and culverts. Agreeably to the instructions of the board, proposals were invited for constructing locks of wood and stone, on two plans pointed out by the engineers; and, likewise of stone locks of the usual construction. Up-

on an examination of the bids, and a comparison of the prices proposed for the erection of the different kinds of locks, it appeared that the difference between the wooden and stone locks, was much less than had been anticipated: it was therefore thought advisable to defer entering into contracts until, the board could be consulted on the propriety of the course to be adopted, in relation to this subject. As no estimate has been made, or money paid to contractors on this line of canal, the amount of work done cannot be stated with precision. Several contractors, however, have commenced their work, and many hands are actively employed on the line.

The continuation of high water until the season had far advanced, retarded the progress of the contractors employed in constructing aqueducts, dams and river locks; nevertheless, water has been let into the canal at the salt works, on the Kiskeminetas, fifty-five miles above Pittsburg, and carried over the large aqueduct across the Allegheny river; and in a short time it is expected the navigation will be open to the city of Pittsburg. With the opening of this navigation, great and unceasing exertions have been made to extend it this fall to the northern turnpike at Blairsville. The first estimate on this line of near thirty miles, was paid in March last; and since that time the excavation of the entire line has been nearly completed. Three dams across the river have been erected; sixteen stone locks; an aqueduct of five arches of fifty-four feet span, of entire stone built, besides several over lateral streams; about eight hundred feet of a tunnel has been excavated through a mountain. The river aqueduct and tunnel, however, are not completed, but are in such a state of forwardness, that little doubt can be entertained that the navigation will be opened early in the spring.

Agreeably to the instructions of the board, Messrs. Roberts, Livermore and Harris, were directed to make an examination, under my direction, of the highest convenient and practicable point, to which the canal should be extended up the Conemaugh. To that report you are referred in relation to the facts connected with this subject. Before closing this report, it is proper to observe that beside the enhancement in the price of labor and supplies, the contractors have suffered to some extent from my inability in many instances to make payments at the time, and in a currency that would pass without a discount. This state of affairs arose from the following causes: from being limited by law in drawing more than fifty thousand dollars, the amount covered by the responsibility of my securities, until my accounts were settled at the treasury; and thus kept within that limit beside the engineer corps on a line of about 160 miles, I was obliged to pay four or five estimates every month, some of which amounted to more than \$60,000. Thus circumstanced, and placed at a distance from the seat of government, it was impossible for me at many times to transmit vouchers, and have my accounts settled at the treasury,



in time to meet my engagements with the contractors; and consequently, I was frequently obliged to overdraw my credits in the banks of Pittsburg and Westmoreland, to the amount of seventy or eighty thousand dollars, and make myself personally liable for the same. This measure was cheerfully acquiesced in by the officers of those monied institutions, from what appeared to me a sincere desire to lend their aid to promote the important objects contemplated by the government. At length, however, my drafts were not paid at the treasury, for the best reason in the world, because there was no money legally applicable to the canal fund in the hands of the treasurer. Thus situated, no alternative presented itself to me, but either to stop the work, ruin contractors and labourers, and destroy public confidence, or issue certificates of debt to the contractors: this I did without hesitation, to the amount of about \$150,000. These certificates were received at par by the contractors, and redeemed by the banks at a discount of not more than one per centum. It is but fair to state, that those embarrassments have arisen, not from any neglect or omission on the part of the constituted authorities of the state, nor from their inability to meet their legal engagements, but to the impossibility of ascertaining with any thing like precision, the amount of labor to be done from month to month, and consequently, the sums that would be required to carry on the extensive works now in operation. But from whatever cause those embarrassments may have arisen, it would be but an act of justice for the contractors to receive a complete indemnity from the government; and I respectfully suggest the propriety of recommending their case to the consideration of the legislature.

A. LACOCK,  
*Acting Commissioner.*

## No. 2.

### Report of the Allegheny and Pine Creek lines, by James D. Harris, Engineer.

*Estimate of work remaining to be done on the Allegheny line, Western Division, Pennsylvania canal.*

At Hill-slips,	\$3,000 00
Conveying water around locks,	2,100 00
Roads contiguous to canal,	200 00
Bridges,	600 00
Fences,	150 00
Slope wall adjoining aqueducts,	100 00
Painting,	160 00
Caulking and pitching,	40 00
Puddling and repairs,	1,800 00
	<hr/> \$8,050,00

## CANAL REPORT.

*Estimate of work, remaining to be done on the Pine Creek Line, Western Division Pennsylvania canal. This line includes the lower aqueduct across the Allegheny, and all the work on the Pittsburg side.*

At Slips,	\$ 3,274 50	
Roads,	1,083 50	
Aqueducts,	46,510 00	
Embankments,	3,200 00	
Bridges,	500 00	
Conveying water around locks,	450 00	
Fences,	150 00	
Draining inundated land,	1,500 00	
Puddling,	500 00	
Wall to protect E. abutment of aqueduct at Washington street,	1,200 00	
Tunnel job,	32,000 00	
Lock houses,	900 00	
		<hr/> \$91,058 00
		<hr/> \$99,108 00

The foregoing is a statement of work remaining to be done on the Allegheny and Pine creek lines of the western division of the Pennsylvania canal, with an estimate of the cost of the same.

JAMES D. HARRIS, *Engineer.*

*Pittsburg, 24th November, 1828.*

*To the Board of Canal Commissioners of Pennsylvania.*

*To the Board of Canal Commissioners of Pennsylvania.*

GENTLEMEN,

I beg leave to report to you the situation of the work on the Allegheny and Pine creek lines of the western division of the canal.

The accompanying statement shows that but little remains to be done to complete the Allegheny line entirely, and that a considerable part of the expense yet to be incurred on that line, is for the purpose of bringing the water around the locks. This is doing in such a manner, that the water power may be used to the best advantage. This, with the lock houses was not estimated in the last report.

The hill-slips have been removed entirely on both lines, where not too extensive. Where it was found too expensive to remove the whole mass, the canal has been made much wider than usual, that there may always be sufficient room for the boats to pass. But as an additional security, and to prevent trouble from the earth slipping in future, which would be a serious inconvenience after the opening of the navigation, it will be advisable to continue a

force through the winter at the points where there are any indications of a disposition to slip. The doing this however, need not interfere with the passage of boats, should the season be sufficiently open. An estimate is made for puddling and repairs, under the expectation that in the progress of letting in the water, some work of this description will be required.

The necessity of moving the line of the canal into the hill, renders it difficult to make the road which runs parallel and close to the canal for a considerable distance. A great part of the excavation on the Pine creek line, was occasioned by this necessity. The great breadth of base required for both canal and turnpike road, and the hill being steep, the depth of cutting was increased in a great ratio. This, together with the slipping character of the ground, makes it troublesome and expensive to construct both canal and road between the hill and the river, and has tended much to swell the cost of the Pine creek line.

In laying the formation of the out-let lock and pier head in Allegheny-town, great difficulty was experienced from the influx of the water through a loose bed of gravel, of which the bottom consisted. The length of masonry was 220 feet, which was sunk 7 feet below low water of the river, and the harbor 50 feet in breadth, and in length 120 feet was excavated to the depth of 4 feet below low water. Much of the labour of men and horses had to be expended in pumping, which forms a large item of the cost of this work.

That part of the canal extending across the Allegheny through Grantshall to the Monongahela, is in a state of forwardness proportioned to the magnitude of the work. The abutments and three of the piers of the aqueduct over the river are raised nearly to the full height; the remaining three piers are raised so high, as to be out of danger of injury. A great part of the superstructure is prepared, ready to set up, and the securing the foundations of the abutments and piers is going forward. The work done at the tunnel and lock contract during the summer, has been chiefly confined to the locks. The out-let lock at the mouth of Suke's run is built to the height of the lift; the stone work of the three remaining is nearly finished, and the gates framed. The tunnel for the length of 65 feet at each end has been cut down to bottom. The arching of this distance and filling above the arch is going on, and the tunnelling about to be recommenced.

The tunnelling proves to be difficult. The material of which the hill consists being so hard as to require blasting, but not sufficiently firm to stand without arching. The main exertion of the contractors will now be directed to the completing the tunnel, and it may be expected that a correspondent progress will be made.

Respectfully submitted,

JAS. D. HARRIS, *Engineer.*

Pittsburg, 24th November, 1828.

## No. 3.

*Report on the Kiskiminetas and Conemaugh lines, by Alonzo Livermore, engineer, including estimates, &c.*

TO THE BOARD OF CANAL COMMISSIONERS OF PENNSYLVANIA.

Gentlemen,

In obedience to the directions of Gen. Lacock, the acting commissioner, I herewith give a statement of the present state and progress of the work, upon the Kiskiminetas and Conemaugh line of canal under my superintendence, together with an estimate of work to be done before completion.

The amount of work yet remaining is calculated by the several assistant engineers, upon their respective lines, and comprehends all items contracted for, with a liberal allowance for hill-slips, and other contingencies.

It will be observed, that the amount which this canal will have cost when completed, will exceed the estimate of last season the sum of \$117,000.

Many causes have combined to produce this increase of expenditure. In the first place enormous slips have come into the canal and lock pits; in one instance at guard lock No. 3, lift No. 4, and canal adjoining the increase of the excavation by this cause, will not cost less than \$20,000. It is worthy of remark, that should a canal have been adopted instead of slack-water navigation for the first three miles of this line, the slips which would have occurred, added to the natural expense, would increase the cost to not less than \$40,000 per mile, thereby saving in this instance by slack-water to the amount of \$75,000. Indeed it would be found, whenever this kind of navigation is adopted, either on this or the Kiskiminetas line, that prodigious expenses have been saved by avoiding the foregoing difficulties.

It was my opinion last season, as well as others better acquainted with the country, that the incidents attendant upon the above would be trifling, both upon this and the Kiskiminetas line. My calculations have come far short of the amount of actual cost in these cases. Whenever the base of the hill has been disturbed by the formation of the canal, without exception the whole body of loose rock and earth has come in from the front of the hill, and in many cases swelled the amount of the excavation to more than double what was calculated. The principal sections where these difficulties have occurred are Nos. 87, 92, 93, 94, 97, 98, 111 and 112. In some instances the towing path has slid from its base, and a farther excavation into the solid rock to secure a permanent foundation for the banks.

The expense upon sections Nos. 111, 112, 118 and 119, will be increased by a removal farther into the solid rock, owing to the confined situation in which the river flows, which would endanger the banks, if made higher and of clay embankment.

There is an additional expense upon the aqueducts of \$27,000. The original contract for the aqueduct across Blockley's creek, was forfeited and a higher price given. The foundation of this and Stony run was also more expensive than estimated. An aqueduct over Mill creek has been built where a culvert was intended. The great increase is upon the stone aqueduct over the Conemaugh. This was originally estimated at \$28,000, the amount of the stone work was expected to be about 4,750 perches, and was soon after contracted for at \$5 75 per perch, which would have come to more than the estimate. It was found in laying out the work that the intended length would not be sufficient to secure the abutments from ice and driftwood; an additional length was added, consequently an increase of the number of perches. It was found that the contractor who first took this job, had not a sufficient price for the work to carry on with that vigor that was necessary. They had already expended their private funds, (as I understood, to the amount of \$2000,) and involved themselves considerably in debt, which made it necessary for them to give up the contract.

A much greater price was requisite to carry on the work, owing to the lateness of the season, than would have done in the first instance.

The cost of this work will nearly equal the sum of \$50,000.

Additional expenses have been put upon the dams, by substituting iron instead of wooden pins, increasing the thickness of the plank, adding more stone and wood work to the abutments, and facing the breast with two inch plank.

The expense of waste wiers is included in this estimate and were before not calculated.

The foregoing items make up the most of the increased cost of the canal in comparison with the last year's estimate.

The following work, or extension has been added since last season, sections No. 124 and 125 a piece of canal adjoining of six chains, an out let lock No. 17 of 10 feet lift, a towing path, bridge and culvert, amounting in all to \$10,000.

A few general remarks remain to be made. This line of 25 miles in extent, may be said to be in a forward state. Many difficulties have been encountered which materially retarded the work; a great scarcity of hands existed in the best part of the last season. The weather has been unusually wet, not a month has passed without a considerable rise in the river. This has been particularly unfortunate for the contractors of dams. They are now, however, nearly secured; a small rise of about 3 feet in the river took place a few days since, the dams were filled, and the water passed over without doing any injury. If three weeks of good weather continue, they can be secured from danger.

The arches of the stone aqueduct, will be closed in about fifteen days; the upper works can be done by the time wanted.

The tunnel is excavated upwards of 700 feet, and can be easily finished during the winter.

## CANAL REPORT.

I feel confident, if no material accident happens to any of the works, that the canal will be ready for the water by the opening of the spring.

A great proportion of the sections and locks, will be finished by the next estimate.

All of which is respectfully submitted,

ALONZO LIVERMORE.

Engineer.

Canal line, Nov. 27th, 1822.

Total amount of work to be done at the estimate of November 10th, 1822. \$120,415 97

A. LIVERMORE,  
Engineer.

### No. 4.

#### Estimate of the cost of Ligonier line.

*Report and Estimate on the Ligonier line from Blairsville to Johnstown—by James D. Harris, Engineer.*

*Lock, section No. 1. 6 chains—no contract.*

Grubbing 6 chains, at	87	\$ 42	
Excavation of earth 4000 yds at 8 cts		320	
Embankment	3398	12	407 76
			<hr/> 769 76

*Section No. 1. 36 chains.*

Grubbing 11½ chains at	86	69	
Excavation of earth 99½ yds at 8 cts		795 36	
Embankment	4327	8	362 16
			<hr/> 1226 56

*Section No. 2. 36 chains.*

Grubbing 10 chains		65	
Excavation of earth 9324 yds 6½ cts		606 6	
Embankment	7053	8	564 24
			<hr/> 1,235 30

*Lock, section No. 2. 6 chains—no contract.*

Excavation of earth 3052 at 8 cts		292 16	
Embankment	2280 at 12	273 60	
			<hr/> 565 76

*Section No. 3.*

Grubbing 25½ chains		225	
Excavation of earth 14,000 at 8 cts		1,120	
Excavation of rock 2,173 35		760 55	
			<hr/> 2,105 55

# CANAL REPORT.

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## *Lock section No. 3. 6 chains—no contract.*

Grubbing 6 chains at	\$7	42	
Excavation of earth	5478	12	637 36
Embankment	540	12	64 80
			<hr/> 764 16

## *Section No. 4. 24 chains.*

Grubbing 24 chains			250
Excavation of earth	16,816 at	8	1,343 28
Excavation of rock	8,408	37½	3,153
			<hr/> 4,748 28

## *Section No. 5. 27 chains.*

Grubbing 6 chains			50
Excavation of earth	8,094 at	7	566 58
Embankment	18,984	8	1,518 72
			<hr/> 2,135 30

## *Section No. 6. 27 chains.*

Excavation of earth	9,774 at	6	586 44
			<hr/> 586 44

## *Lock section No. 4. 6 chains—no contract*

Excavation of earth	3,910 at	10	391
Embankment	1,500	12	180
			<hr/> 571

## *Section No. 7. 30 chains.*

Grubbing 2½ chains,			10
Excavation of earth	9960 yds,	7 c	697 20
Embankment	1630	9	143 50
			<hr/> 855 70

## *Section No. 8. 30 chains.*

Grubbing 24 chains			200
Excavation of earth	10,460 at	7	732 20
Excavation of rock	1,000	31	310
			<hr/> 1,242 20

## *Dam section No. 1. 6 chains.*

Grubbing 6 chains at	\$7	42	
Excavation of earth	180 at	8	144
do. rock	550	40	180
Embankment	1,200	10	320
			<hr/> 686

## *Section No. 9. Tow path, 30 chains.*

Grubbing 30 chains			180
Excavation of earth	4,000 at	7	280
Excavation of rock	2,000	31	620
Embankment	3,000	9	270
			<hr/> 1,350

## CANAL REPORT.

*Section No. 10. Tow path, 30 chains.*

Grubbing 30 chains		300	
Excavation of earth 3,000 at	7	210	
Excavation of rock 2,000	34½	690	
Embankment 3,000	10	300	
			<hr/> 1,500

*Section No. 11. Tow path, 24 chains.*

Grubbing 24 chains		293	
Excavation of earth 5,500 at	7	245	
Excavation of rock 1,800	42	756	
Embankment, 3,000	9	270	
			<hr/> 1,564

*Lock section No. 5. 6 chains—no contract.*

Grubbing 6 chains, at	8	7	42	
Excavation of earth, 5,000 chains	12		600	
Embankment, 1,500	12		180	
				<hr/> 822

*Section No. 12, 21 chains.*

Grubbing, 21 chains,		180	
Excavation of earth, 13818 at	8	1,105	44
			<hr/> 1,285 44

*Dam section No. 2. 6 chains.*

Grubbing 6 chains at	7	42	
Excavation of earth, 5478 at	10	547	80
			<hr/> 589 80

*Section No. 13. Tow path 56 chains.*

Grubbing 56 chains,		150	
Excavation of earth, 5500 at	6½	357	50
Rock, 500 at	40	200	
Embankment, 4000	7	280	
			<hr/> 987 50

*Section No. 14. Tow path 33 chains.*

Grubbing 33 chains,		250	
Excavation of earth 6000 at	7½	435	
Rock, 500	45	225	
Embankment, 5000	9	270	
			<hr/> 1,180

*Section No. 15. Tow path 33 chains.*

Grubbing,		300	
Excavation of earth, 5500 at	8	440	
Rock, 1000	40	400	
Embankment, 3000	9	270	
			<hr/> 1,410

*Lock section No. 6. 6 chains—no contract.*

Grubbing 6 chains,		42	
Excavation of earth 5000 at	12	600	
Embankment, 2000	10	200	
			<hr/> 842



# CANAL REPORT.

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## *Lock section No. 7. 6 chains—no contract.*

Grubbing 6 chains, at	7	42	
Excavation of earth 2910	15	436	30
Embankment, 2000	10	200	
			<hr/> 678 50

## *Section No. 16. 50 chains*

Grubbing 30 chains,		190	
Excavation of earth, 18260	7	1,278	20
Rock, 3000	45	1,350	
Embankment, 8000		640	
			<hr/> 3,458 20

## *Lock—section No. 8. 3 chains—no contract.*

Grubbing 3 chains, at	3 7	21	
Excavation, 1914	20	382	80
Embankment, 1500	10	150	
			<hr/> 553 80

## *Section No. 17. 30 chains.*

Grubbing 30 chains,		120	
Excavation of earth, 4760	7	533	20
Rock, 2380	30	714	
Embankment, 12000	8	960	
			<hr/> 2,127 20

## *Lock section No. 9. 3 chains—no contract.*

Grubbing 3 chains, at	7	21	
Excavation, 1,974	20	394	80
Embankment, 1,200	12	144	
			<hr/> 559 80

## *Section No. 18. 30 chains.*

Excavation of earth, 18,326 at	6	1,099	56
Rock, 4,108	30	1,232	40
Embankment, 9,648	8	771	84
Wall, 3,278	50	1,639	
Puddling, 2,500	20	460	
			<hr/> 5,502 80

## *Lock—section No. 10. 6 chains—no contract*

Grubbing 6 chains,	3 7	42	
Excavation, 1,660	21	332	
Embankment, 3,000	10	300	
			<hr/> 674

## *Section No. 19—30 chains.*

Grubbing 18 chains,		500	
Excavation of earth, 15,716 at 6 cts.		942	96
do rock, 7,858	30	2357	40
Embankment, 16,079	8	1286	32
Wall, 7,590	50	3795	
Puddling, 1,860	20	372	68
			<hr/> 9655

## CANAL REPORT.

*Section No. 20—24 chains.*

Grubbing 24 chains,		175	
Excavation of earth, 4074 at 7,		295	18
Embankment, 3486 9,		313	74
		<hr/>	773 92

*Section No. 21. 50 chains.*

Grubbing 26 chains		200	
Excavation of earth 7968	7	557	76
Rock 400	50	120	
Embankment 2988	9	268	92
		<hr/>	1146 68

*Section No. 11.—6 chains.*

Grubbing 6 chains 8 6		36	
Excavation of earth 5948 at	8	315	84
Embankment 1000	10	100	
		<hr/>	451 84

*Lock—Section No 12—no contract*

Grubbing 6 chains at 26		56	
Excavation of earth 2381 at	8	190	48
Embankment 1500	10	150	
		<hr/>	376 48

*Section No 22—30 chains—no contract.*

Grubbing 30 chains at \$7		210	
Excavation of earth 17595 at	9	1583	55
Rock 5805	40	2345	
Embankment 2000	10	200	
Puddling 1150	20	330	
Wall 2640	25	660	
		<hr/>	5329 55

*Section No. 23—27 chains.*

Grubbing 18 chains		100	
Excavation of earth 10364 at	7½	777	30
Rock 3454	37	1277	98
Embankment 5000	8	240	
Wall 1584	35	554	40
Puddling 1600	9	144	
		<hr/>	3093 68

*Lock—Section No. 13—6 chains—no contract.*

Grubbing 4 chains at \$7		28	
Excavation of earth 2346 at	8	187	68
Embankment 2000	10	200	
Slope wall 352	50	176	
		<hr/>	591 68

*Lock—Section 14—6 chains—no contract.*

Excavation of earth 2710 at	8	216	80
Embankment 1200	10	120	
		<hr/>	336 80

# CANAL REPORT.

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## Lock—Section No. 15—12 chains—no contract.

Excavation of earth	100 <sup>0</sup> at	8	80	
Embankment	4639	10	463 90	
				543 90

## Section No. 24—21 chains

Grubbing 12 chains			50	
Excavation of earth	5438 at	6	506 58	
Embankment	58,315	8	3006	
				3332 28

## Section No 25—36 chains.

Grubbing 36 chains			100	
Excavation of earth	9540 at	8	763 20	
				863 20

## Section No 2—33 chains.

Grubbing 20 chains			150	
Excavation of earth	9372 at	74	702 90	
Embankment	300	11	53	
				685 90

## Section No 27—30 chains.

Grubbing 30 chains			150	
Excavation of earth	7125 at	7	512 75	
Embankment	11485	9	1033 65	
				1696 40

## Section No. 28—30 chains

Grubbing 18 chains			150	
Excavation of earth	18743 at	6	1124 58	
Rock	6.47	40	2493 81	
				3775 38

## Section No. 29—30 chains.

Grubbing 23 chains			130	
Excavation of earth	4080 at	10	408	
Embankment	5230	10	525	
				1173

## Lock—Section No. 16—6 chains—no contract

Grubbing 6 chains at \$6			36	
Excavation of earth	2340 at	10	234 00	
Embankment	2500	10	250	
				520 00

## Section No. 30—33 chains.

Grubbing 29 chains			200	
Excavation of earth	4848 at	9	436 32	
Embankment	5462	134	467 37	
				1063 69

## Section No. 31. 42 chains.

Grubbing, 9 chains			200	
Excavation of earth	15,044 at	8	1,115 52	
Embankment	3,000 at	10	300	
				1615 52

## CANAL REPORT.

*Section No. 52. 33 chains.*

Grubbing 151 chains,			45	
Excavation of earth, 14,634	at 7	1,021	38	
Embankment, 6,076	at 8	486		
Wall, 570	at 50	295		
				1840 46

*Section No. 53. 30 chains.*

Grubbing 30 chains,			100	
Excavation of earth, 11,678	at 6	68	28	
Excavation of rock, 11,678	at 30	5,491	40	
Embankment, 15,934	at 9	1,438	55	
Wall, 1,425	at 28	397		
				6127 24

*Section No. 54. 36 chains.*

Grubbing 19 chains,			125	
Excavation of earth, 5,712	at 7½	429	40	
Embankment, 5,050	at 10	505		
				1058 40

*Lock section No. 17. 6 chains.*

Excavation of earth, 2,632	at 8	210	56	
Embankment, 2,500	at 10	250		
				466 56

*Lock section No. 18. 6 chains.*

Excavation of earth 2,925	at 8	234		
Embankment 2,000	at 10	200		
				434

*Section No. 55. 57 chains.*

Excavation of earth 10,314	at 7	721	98	
				721 98

*Lock section No. 19. 6 chains.*

Grubbing 2 chains	at 86	12		
Excavation of earth 3,010	at 8	240	80	
Embankment 2,000	at 10	200		
				452 80

*Lock section No. 20. 6 chains.*

Grubbing 6 chains	at 87	42		
Excavation of earth 4,692	at 9	422	38	
Embankment 1,500	at 10	150		
				614 28

*Section No. 56. 36 chains.*

Grubbing 23½ chains			150	
Excavation of earth 15,588	at 7½	1208	07	
				1358 07

*Section No. 57. 42 chains.*

Grubbing 24 chains			150	
Excavation of earth 13,944	7½	1,045	80	
				1195 80

# CANAL REPORT.

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## Section No. 38. 30 chains.

Grubbing 2 chains			50	
Excavation of earth	8,191	at 8	655 52	
Embankment	16,068	at 10	1606 80	
				2312 32

## Section No. 39. 42 chains.

Excavation of earth	7140	at 7	499 80	
Embankment,	6,000	10	600	
				1099 80

## Section No. 40. 42 chains.

Grubbing, 30 chains,			200	
Excavation of earth, 6,640		at 8	531 20	
Embankment,	15,334	11	1,86 74	
				2,417 94

## Lock section No. 24. 9 chains.

Excavation of earth, 3,981		at 9	358 29	
Embankment,	3,000	10	300	
				558 29

## Section No. 41. 33 chains

Grubbing 29 chains,			175	
Excavation of earth,	2,068	at 6	124 08	
Rock,	4136	37½	2,217 60	
Embankment,	27,720	8	2,217 60	
Wall,	1,678	75	1,258 50	
				5,326 18

## Section No. 42. 27 chains.

Grubbing. 27 chains,			175	
Excavation of earth,	7,425	at 7½	556 87½	
Rock,	7,423	33	2,450 23	
Embankment,	36,640	9	3,307 61	
Wall,	2,517	30	753 10	
				7,144 82½

## Section No. 43. 50 chains.

Grubbing, 50 chains,			\$100	
Excavation of earth, 10,364, at 6 cts.			621 84	
Rock,	3,454,	40,	1,381 60	
Embankment,	12,282,	9½,	1,197 49½	
Wall,	470,	30,	141	
				3,441 93½

## Lock Section No. 22. 6 chains—no contract.

Grubbing 6 chains,		at 5	\$30	
Excavation of earth,	3,000	10	300	
Embankment	1,500	12	180	
				510

## Section No. 44. 42 chains.

Grubbing,	42		200	
Excavation of earth,	11,000	9	900	
Embankment,	5,590	10	559	
				1,749

## CANAL REPORT.

*Section No. 45. 56 chains.*

Grubbing,	56	100	
Excavation of earth,	10,224 at 8 cts.	817 92	
		<hr/>	1,117 92

*Section No. 46. 33 chains.*

Grubbing,	33 ch.	500	
Excavation of earth,	7,872 at 8 cts.	629 76	
Rock,	1,500 37	535	
		<hr/>	1,434 76

*Lock Section No. 23. 6 chains—no contract.*

Grubbing,	6 ch.	56	
Excavation of earth,	2,500 at 10 cts.	280	
Embankment,	1,500 12	180	
		<hr/>	496

*Section No. 47. 21 chains.*

Grubbing,	21 ch.	250	
Excavation of earth,	6,904 at 7½	517 80	
Rock,	6,904 51	2,140 24	
Puddling,	2,172 20	454 40	
		<hr/>	3,342 44

*Dam Section No. 3. 9 chains.*

Grubbing,	9 ch.	87	00
Excavation of earth,	3,519 10	351 90	
Rock,	3,519 40	1,407 00	
		<hr/>	1,822 50

*Section No. 48. Tow-path, 56 chains.*

Grubbing,	56 ch.	250	
Excavation of earth,	4,000 at 7½ cts.	300	
Rock,	3,000 31	950	
Embankment,	1,500 8	120	
		<hr/>	1,600

*Section No. 49. Tow-path 36 chains.*

Grubbing,	36 ch.	290	
Excavation of earth,	3,000 at 8 cts.	240	
Rock,	3,000 40	1,500	
Embankment,	1,500 10	150	
		<hr/>	1,830

*Section No. 50. Tow-path, 36 chains.*

Grubbing,	36 ch.	200	
Excavation of earth,	4,500 at 8½	362 50	
Rock,	1,500 41	615	
Embankment,	1,000 9½	95	
		<hr/>	1,972 50

# CANAL REPORT.

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## Section No. 51. Tow-path 36 chains.

Grubbing,	36 ch.	185	
Excavation of earth,	6,000 at $8\frac{1}{4}$	495	
Rock,	1,000 40	400	
			1,080

## Section No. 52. Tow-path, 36 chains.

Grubbing,	36 ch.	410	
Excavation of earth,	6,000 at 9	540	
Rock,	1,000 $37\frac{1}{2}$	375	1325

## Section 53 Tow-path 39 chains.

Grubbing,	39 ch.	320	
Excavation of earth,	8,000 at 9 cts.	720	
			1040

## Lock Section 24 9 chains—no contracts.

Grubbing,	9 ch. at \$7	63	
Excavation of earth,	1,350 12	1,620	
Embankment	500 10	50	
			1,733

## Section No. 54. Tow-path, 42 chains.

Grubbing,	42 chains,	300	
Excavation of earth,	7,000 at 8 cts.	560	
Rock,	1,000 $57\frac{1}{4}$	370	
			1230

## Section No. 55. T. P. 33 chains.

Grubbing 33 chains.		340	
Excavation of earth 4000 at 7		280	
Excavation of rock 2000 40		800	
			1,420

## Section No. 56. 39 chains.

Grubbing at 39 cts.		285	
Excavation of earth 12,193 at 8		975 60	
Excavation of rock 4,065 33		1,341 45	
			2,602 05

## Lock Section No. 25. 6 chains—no contract.

Grubbing 6 chains \$7		42	
Excavation of earth 3,600 at 10		360	
Embankment 2,000 12		240	
			642

## Lock section No. 26. 6 chains—no contract.

Grubbing 6 chains at \$7		42	
Excavation of earth at 3,600 10		360	
Embankment 1,500 10		150	
			552

## Lock section No. 27 9 chains—no contract.

Grubbing 9 chains at \$7		63	
Excavation of earth 4,050 at 10		405	
Excavation of rock 1,350 at 40		540	
Embankment 500 12		60	
Slope wall 1,000 50		500	
			1568

## CANAL REPORT.

*Section No. 57. 56 chains.*

Grubbing 20½ chains			200
Excavation of earth 7,968	at	7	567 76
Excavation of rock 3,984		39	1,553 76
Embankment 10,880		9	979 20
Slope wall 713		50	556 50
			<hr/> 3,647 22

*Section No. 58. 42 chains—no contract.*

Grubbing 15 chains			150
Excavation of earth 8000	at	10	800
Embankment 8,700		10	870
			<hr/> 1,820

*Lock section No. 28. 6 chains—no contract.*

Excavation of earth 2,346	at	10	234 60
Embankment 1,500		12	180
			<hr/> 414 60

*Section No. 59. 42 chains—no contract.*

Grubbing 15 chains			150
Excavation of earth 14,634	at	8	1,170 72
Embankment 7,500		10	750
			<hr/> 2,070 72

*Section No. 60. 42 chains—no contract.*

Grubbing 35 chains			200
Excavation of earth 3,000	at	10	300
Embankment 21,000		10	2,100
			<hr/> 2,600

*Lock section No. 29. 6 chains.*

Grubbing 6 chains 87			42
Excavation of earth 5 000	at	12	600
Embankment 2,000		10	200
			<hr/> 842

*Section No. 61—42 chains.*

Grubbing 39 chains			500
Excavation of earth 6390	at	10	639
Embankment 20,600		10	2060
			<hr/> 2999

*Section No. 62—42 chains.*

Excavation of earth 5880	at	8	470 40
Embankment 16,458		10	1645 80
			<hr/> 2115 20

*Section No 63—42 including harbor and basin at Johnstown.*

Excavation of earth in canal 10,800	at	10	1080
in clearing out and shaping har-			
bor in channel of river 5000	at	40	2000



## CANAL REPORT.

35

<i>No contract.</i>			
Excavating basin	5555	20	1111
Embankment between basin and dam	1200	12	1440
Facing embankment with stone	3000 per. at 75		2250
Docking 1600 feet at \$1.50			2400

10281

\$ 171,150 96

## LOCKS.

Lock No.	Lift	9 feet	1010 perches	\$4 75	\$4757 50
2	8		925	4 50	4162 50
3	10		1113	4 50	5008 50
4	5		700	4	2800
5	11		1257	3 75	4713 75
6	12		1400	3 75	5250
7	8		925	3 75	3468 75
8	8		925	3 75	3468 75
9	7		845	3 75	2937 50
10	8		925	3 75	3468 75
11	6		750	4	3000
12	6		750	4	3000
13	7		845	4	3380
14	7		845	4	3380
15	7		750	6	4500
{ Attached to aqueduct,					
16	8		925	4 25	3931 25
17	8		925	5	4625
18	8		925	5	4625
19	8		925	5	4625
20	7		845	5	4225
21	6		750	3 75	2812 50
22	8		925	4	3700
23	8		925	3 75	3237 50
24	8		850	3 75	3167 50
{ Attached to guard lock.					
25	12		1400	3 75	5250
26	8		925	3 75	3237 50
27	8		925	3 75	3237 50
28	7		845	4	3380
29	8		925	4 50	4162 50
30	3		1600	4 75	7600
{ Guard and lift combined.					
Guard lock No. 1			1500	3 75	5625
2			1500	4	6000
3			1500	3 75	5625
4			1500	3 75	6625

\$142,027 25

2d. For locks built of rough stone laid in mortar. To be plank-ed next the chamber, on timbers built into and bolted to the wall: the walls to be of the usual size of stone locks. This kind of work to extend from the head of the lock to the lower gates. Below that to be built of stone in the usual way: upon these two plans, both mitre sills and the upper hollow quoins to be of wood.

3d. For stone locks entire, as they have been usually built on the western division.

It is thought best to build the part of the lock below the lower gates of stone in all cases, as the water could never be more than 4 feet on that part. It would therefore be subject to decay so rapidly, that the interest of the difference in cost between wood and stone, would not compensate for the inconvenience of frequent repairs.

The foundation and the lock, culvert and paddlegates, are the same on the three plans, except that fewer foundation timbers are required for the crib lock than for either of the others.

The expediency of adopting the frame lock was considered of, but it was thought objectionable, particularly for heavy lifts, and in all cases where the walls must be high as the timbers must either be exposed to the action of the weather for most part of the height, or be surrounded by a bank of earth which this kind of lock, from the nature of its construction, is illy calculated to sustain. In either case, the timbers would be liable to decay quickly. Filling in the frame with stone, and surrounding the timbers with water as in the crib lock, might answer the purpose, but it would be more expensive than the crib lock without possessing any advantage over it.

I would observe that the materials for stone locks are abundant and very convenient almost the whole length of the line, and the timber in the neighborhood is generally of an inferior kind.

The estimates of the sections, aqueducts and dams, are made out at the contract prices, except where marked "no contract." No contracts having been made for any other part of the work, the estimates have been made out at such prices as it is supposed it might be done for.

Preparations are making generally on the line as far as let, for a vigorous prosecution of the work. Many sections are already commenced

Respectfully submitted,

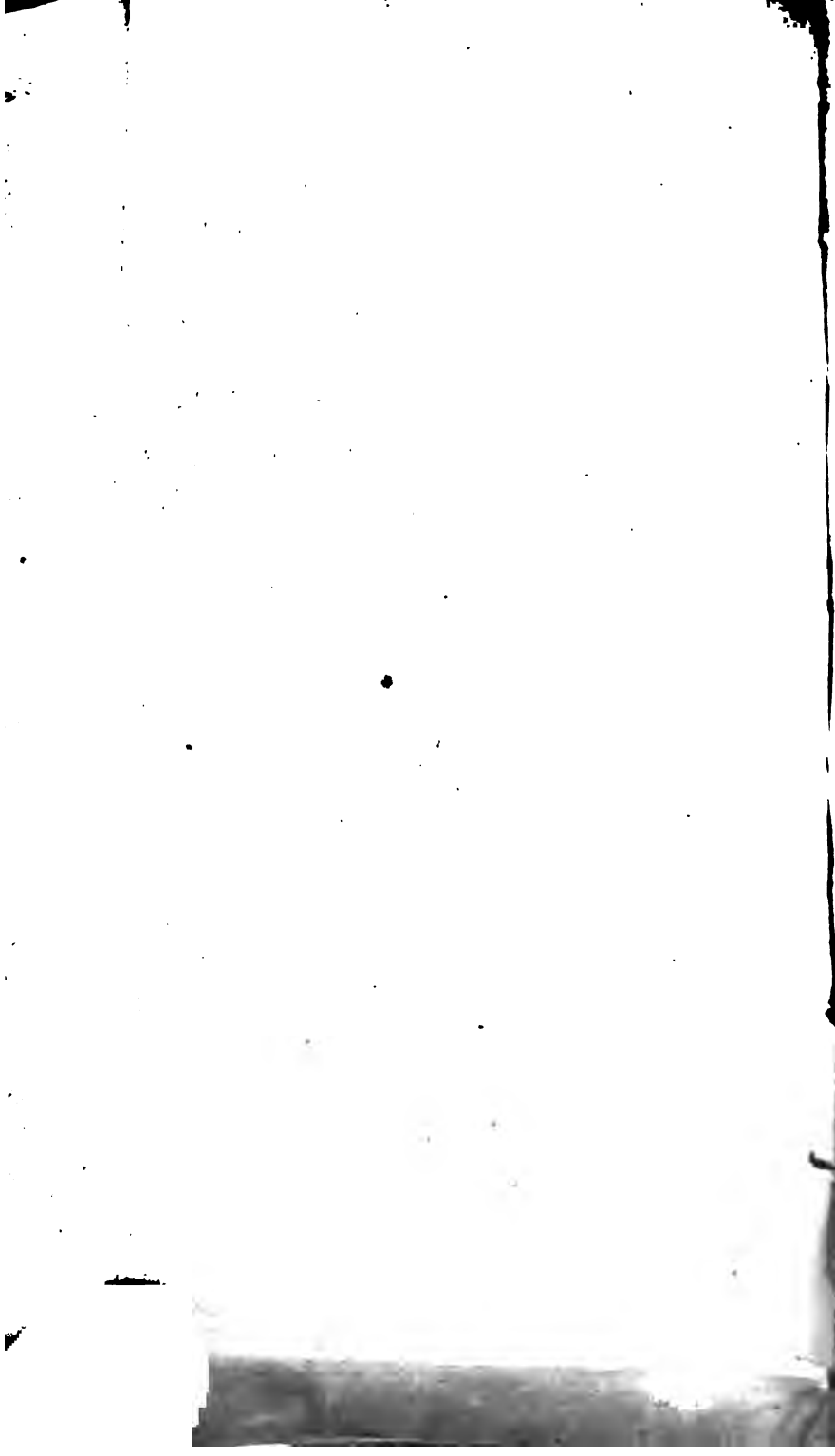
JAMES D. HARRIS, *Engineer.*

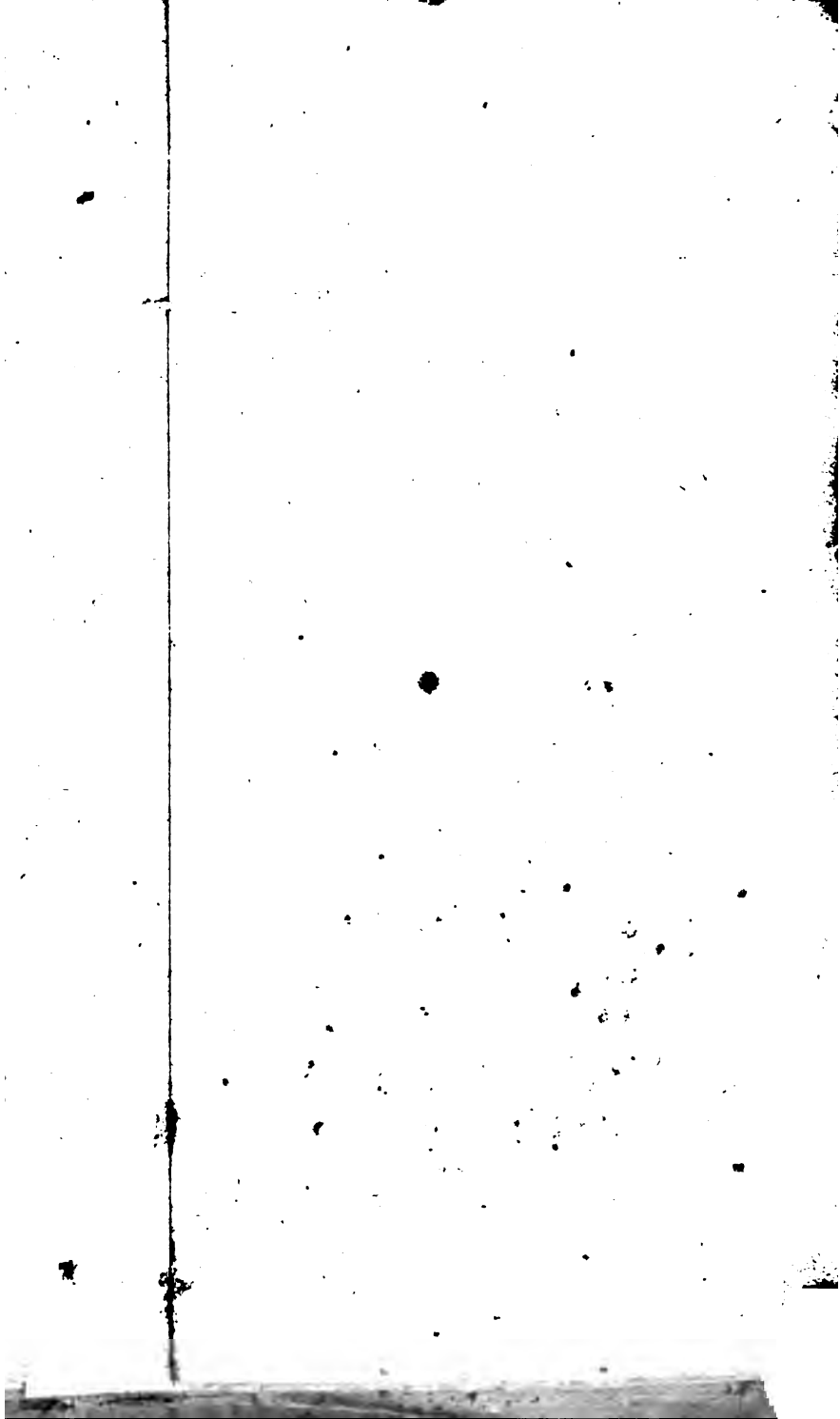
*To the board of canal commissioners  
of Pennsylvania.*

*November 24, 1828.*

**STATE** in the commencement of the work to this date,  
 ling at Section 92, near Pine Creek.

No. of Sections.	Miscellaneous.	Total.
Adjoining Aqueduct.		1000 96 3528 53
No. 1	ling 43 stumps at \$1 on Inner slope	2125 67
67	100 ps. road at \$1.	4680 78½
68	165 ps road at \$1 grubb. on slips \$105	4456 24½
69	111 ps. road & grubbing on slip \$173 25	3844 31
70		5939 70
71		2978 85
72		410 60
73	ing 66 yds at 20 cty.	10840 38
74		2065 99½
75	g house and stable \$15.	1088 26
76	ing additional breadth \$5,	494 00
77		8539 63
78		1376 06
79		856 77
80	ing on long slope \$50.	1268 52½
81	ing 1 stump 75 cts.	1343 66
82		5219 35
83		1176 20
84	ing 7 stumps \$3.	1154 76½
85		560 99½
86	ing 5 chains at \$5	402 10
87	ing fence \$10.	725 53
88	bbing caused by altering line \$15.	450 86½
89		1228 68½
90		902 80
91		272 76
92		1646 40
		1493 18
		554 08
		\$257510 36½

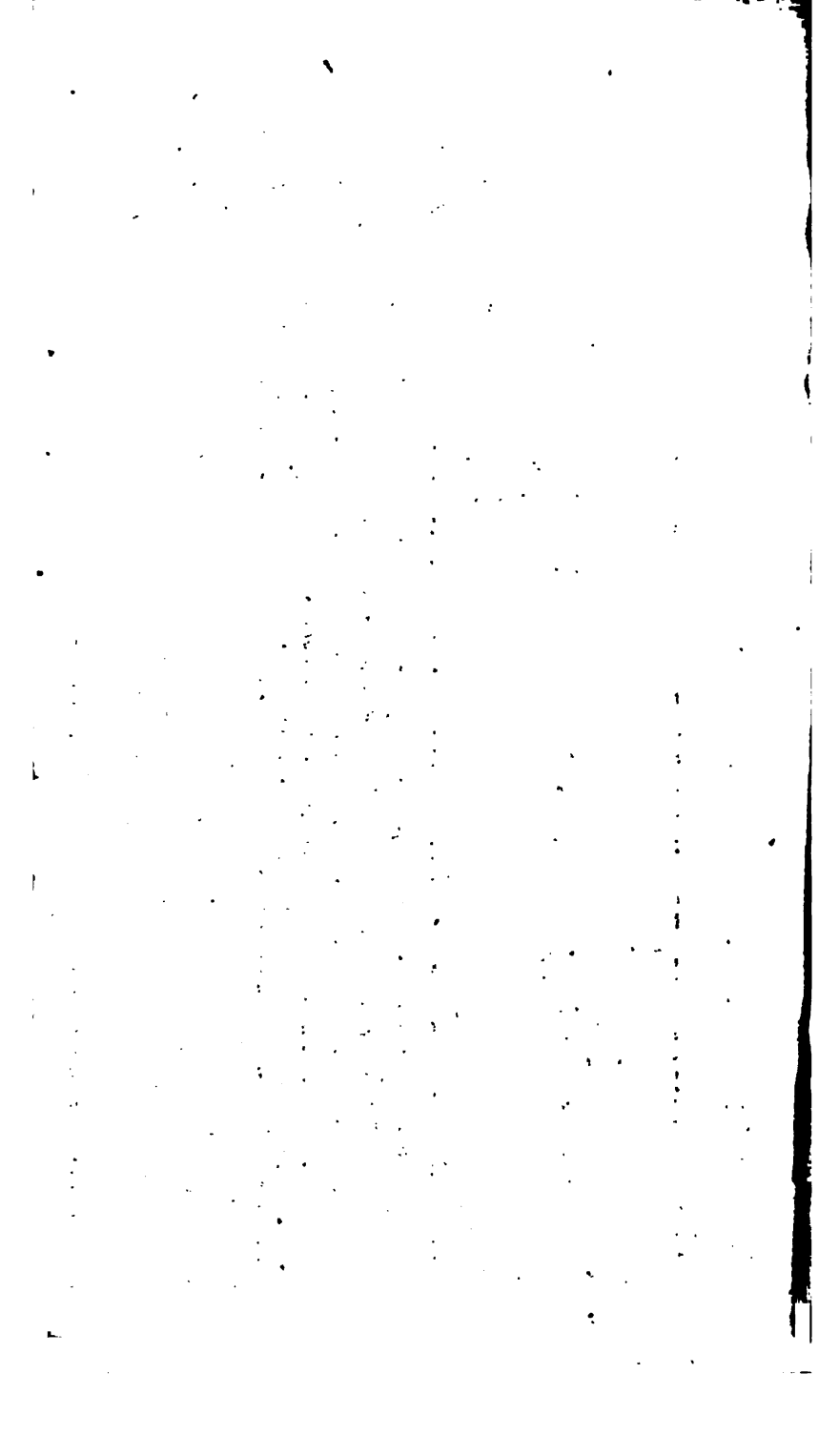






Bridges on sections.	Names of	
No. 2,	M'Farland	\$50 00
4	do	168 87½
5	Bales & Co	185 41
6	M'Farland	removing cider press and grubbing in orchard. \$10.
		213 70

At bridge on Sec. No. 4	294 75
At Buffalo creek aqueduct	296 25
On section 10	201 75
13	86 25
17	368 00
16	66 87½
32	19 00
At Bull creek aqueduct, linking aqueduct 5 40	21 90
On section 38	10 00
At culvert on Sec. 54 & 57	414 61
68	90 62½
At aqueduct Deer creek, Rev. R. Woods house,	135 00
On Sec. No. 80,	291 00
81, 82,	103 00
At aqueduct Deer creek,	30 00
	<hr/> 2575 26



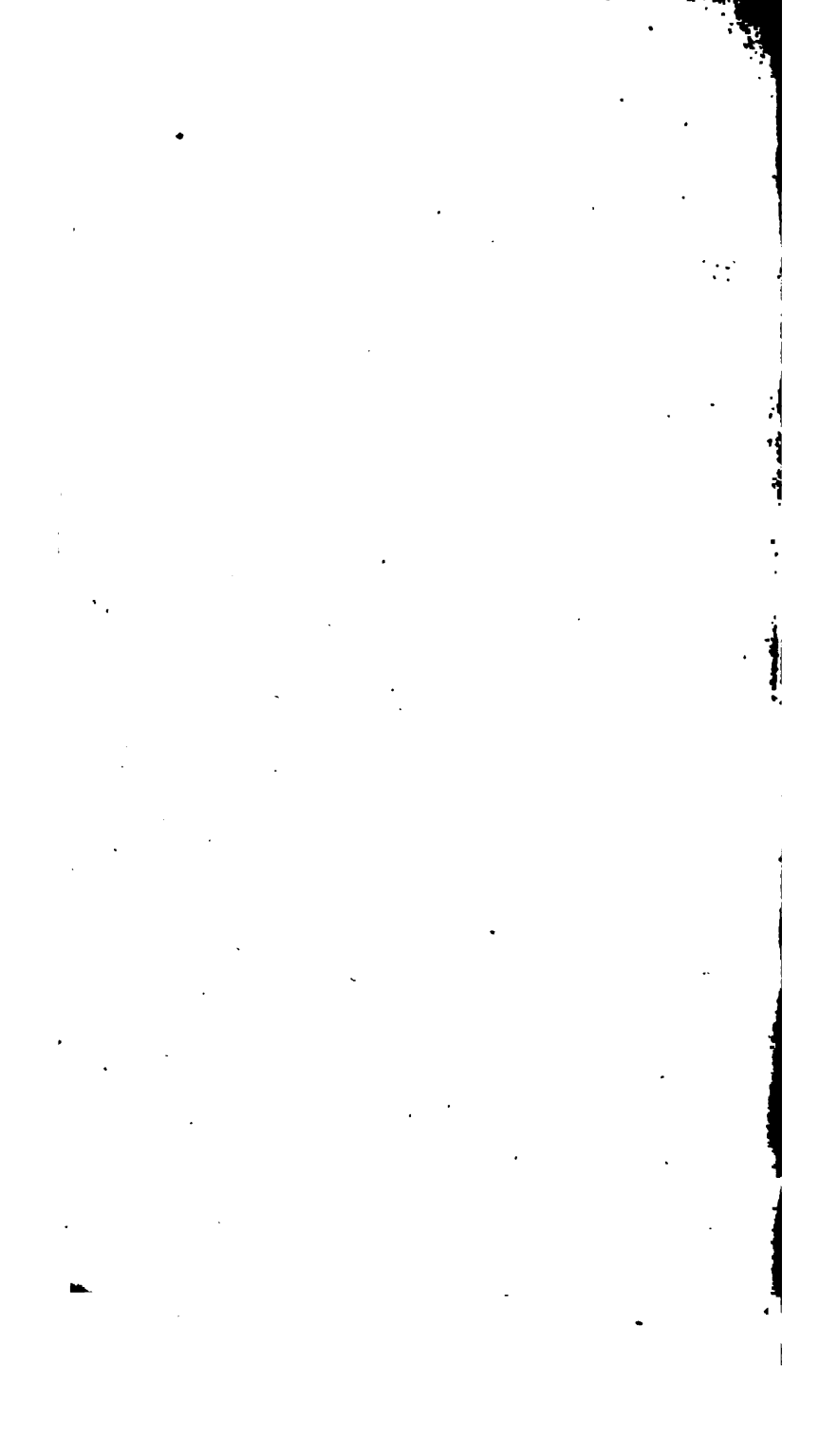


## IN OR FOUNDATION OF BRIDGES

do		7,408 62½
		5,417 00
Deduct amount done	nkments	3,975 62½
		3,025 12
Amount done s	ms	425 67½
		4,945 98
Embankment in sec	f bridges	2,575 26
do at ad		86 63
do at ld		420 00
do at br	ctions	1,492 16
do at re		3,245 02½
do at hit	t included in sections	287 70
		262 16
		26,764 70
Deduct amount done	us work	745 74½
Amount done s,		\$ 372,107 80½
	334,795 01	
Masonry at aqueduc	educt to 10th	
do at locks	ement,	59,000 00
do at culverts		275,795 01
do at wastew	er, 1827,	96,221 79

Amount done to 10th work done on the Allegheny line of the  
 Deduct amount done from the commencement of the work,  
 November, 1827, to this date.  
 head of "hill-slips," is but a small part  
 of the hill. It shews the amount of  
 contracts subsequent to the original con-

Amount done s  
 Protection wall and netas having been attached to the Kiske-  
 do report, the amount of work done there  
 do  
 do respectfully yours,  
 do JAMES D. HARRIS, *Engineer*.



Pennsylvania Canal, from Section  
work in city of Pittsburg.

MISCELLANEOUS.

Amount.

\$ 363 57  
603 37  
1976 05  
3421 50  
12363 50  
5335 60

1896 30

2860

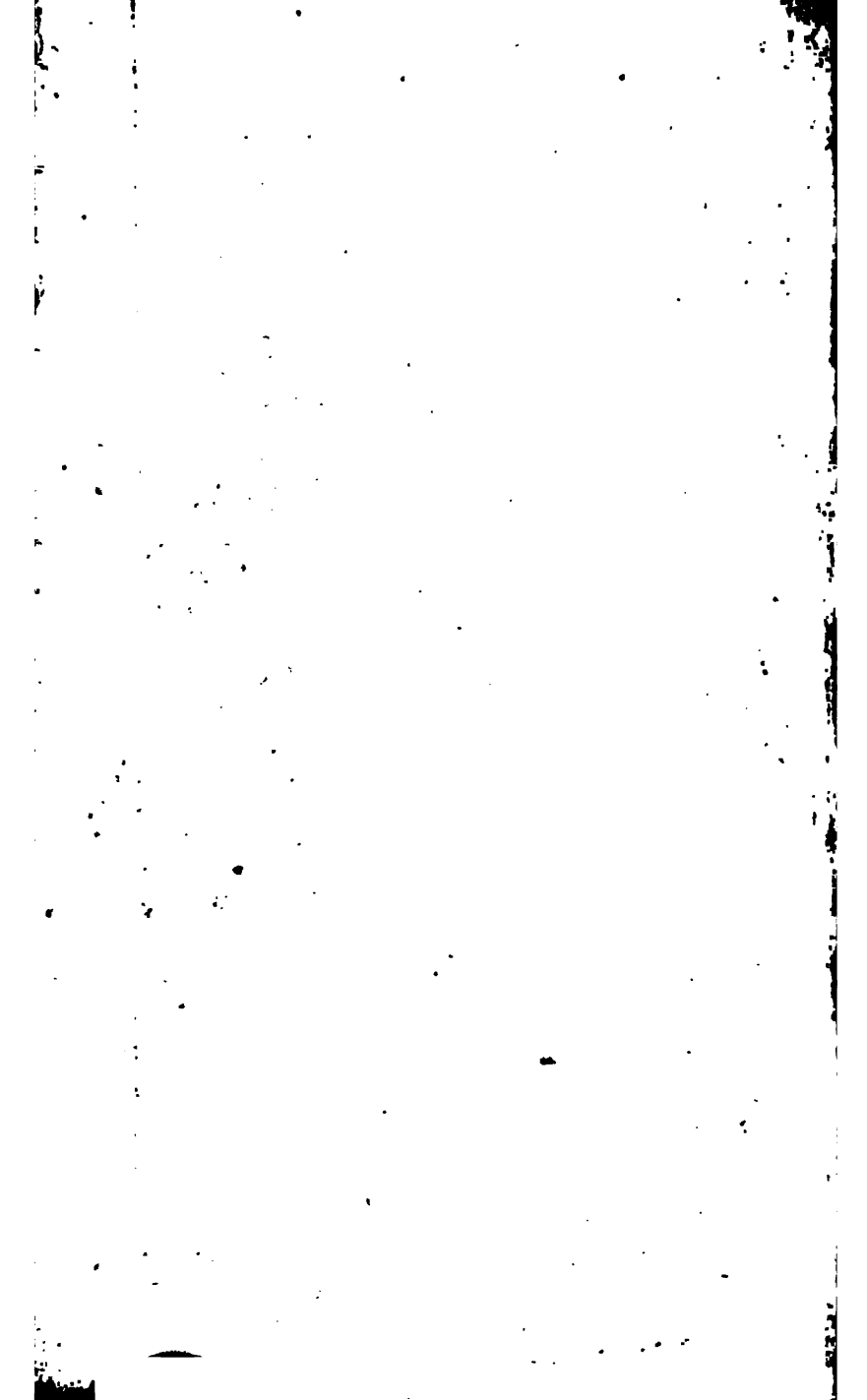
\$21,799 52½

Amount.

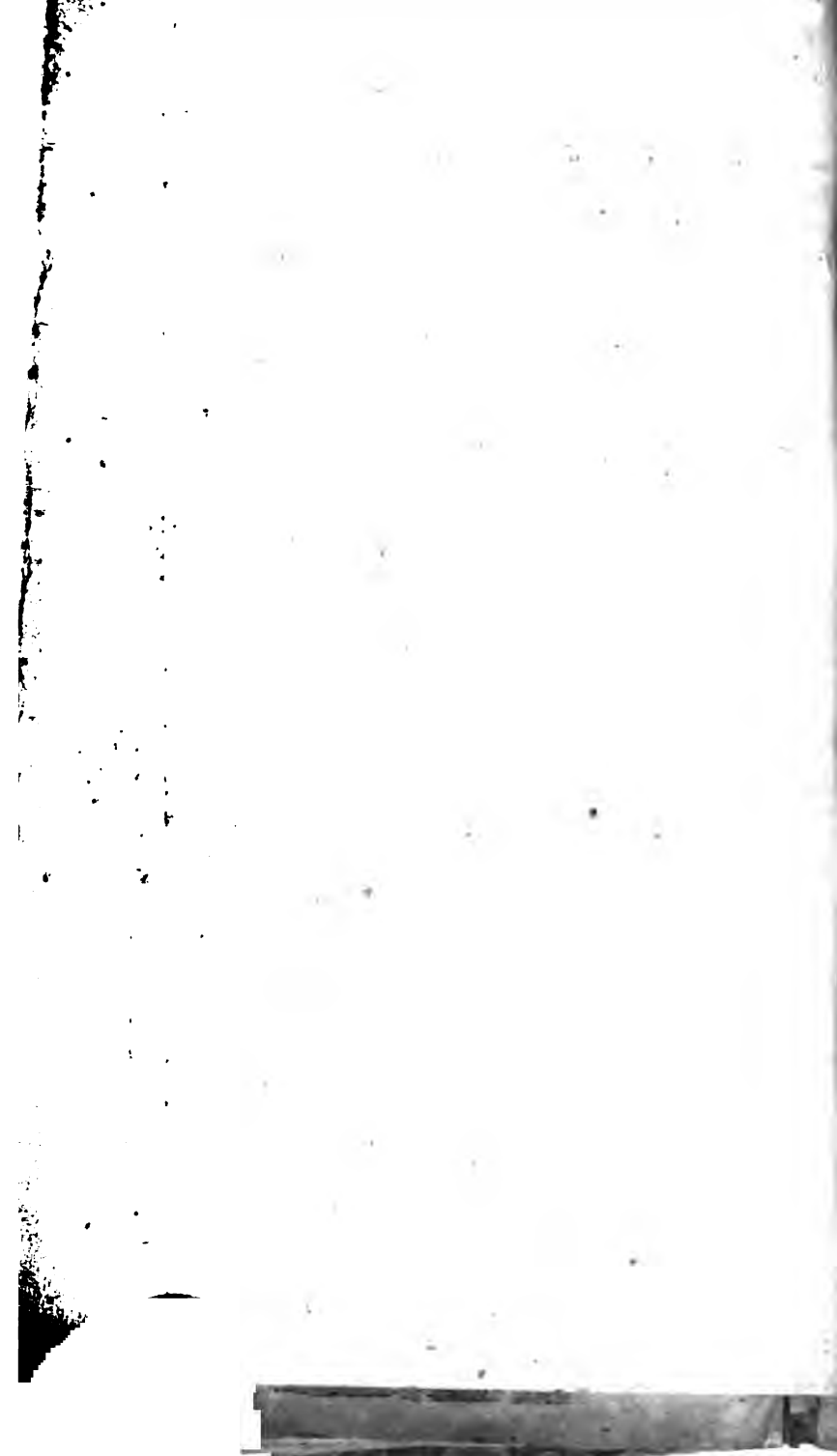
f rock in road, }  
yards at 37½ }

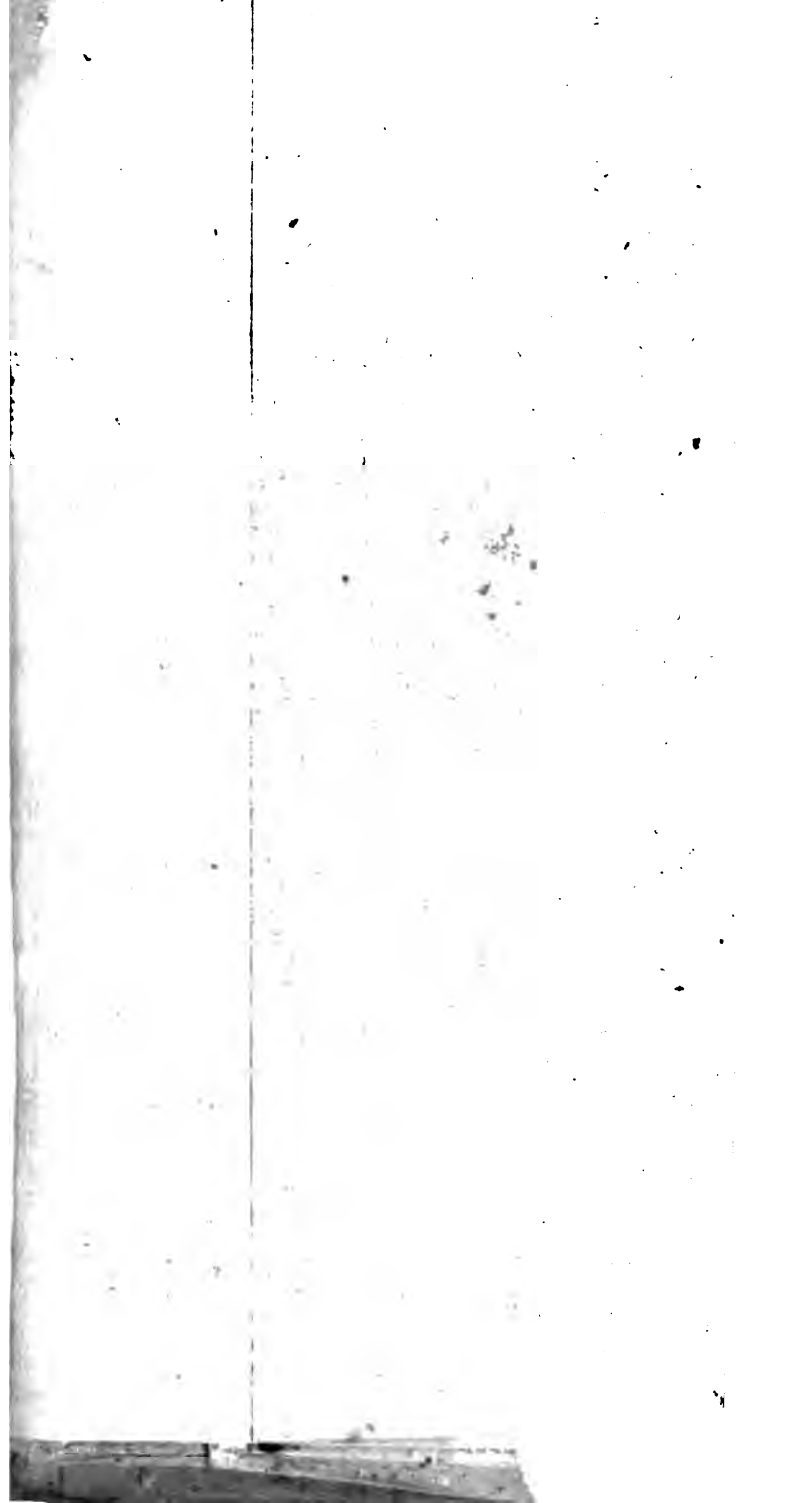
333  
411 75  
322 10  
151 50  
180  
388 40  
117  
470 75  
66 25

\$2490 75



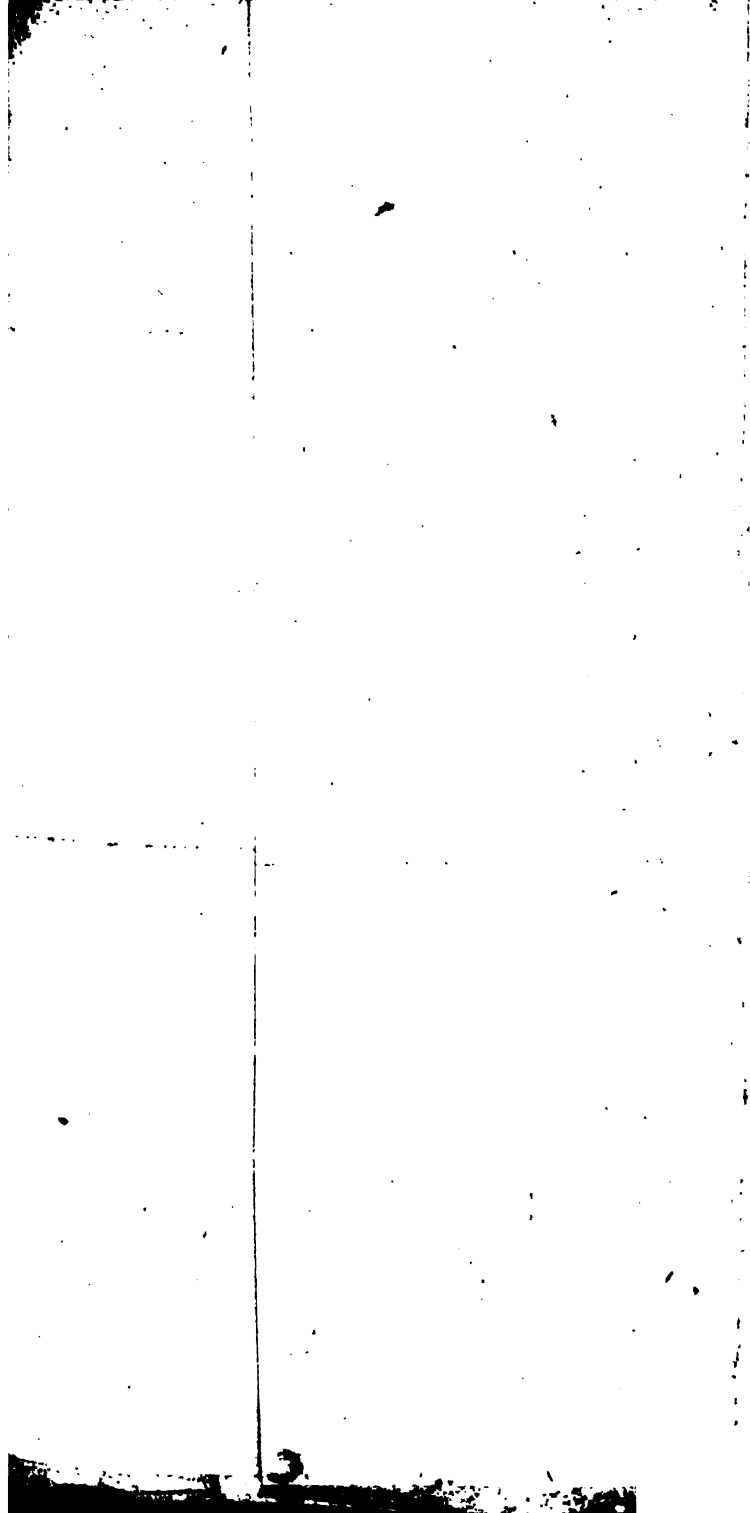
















du  
du

etc



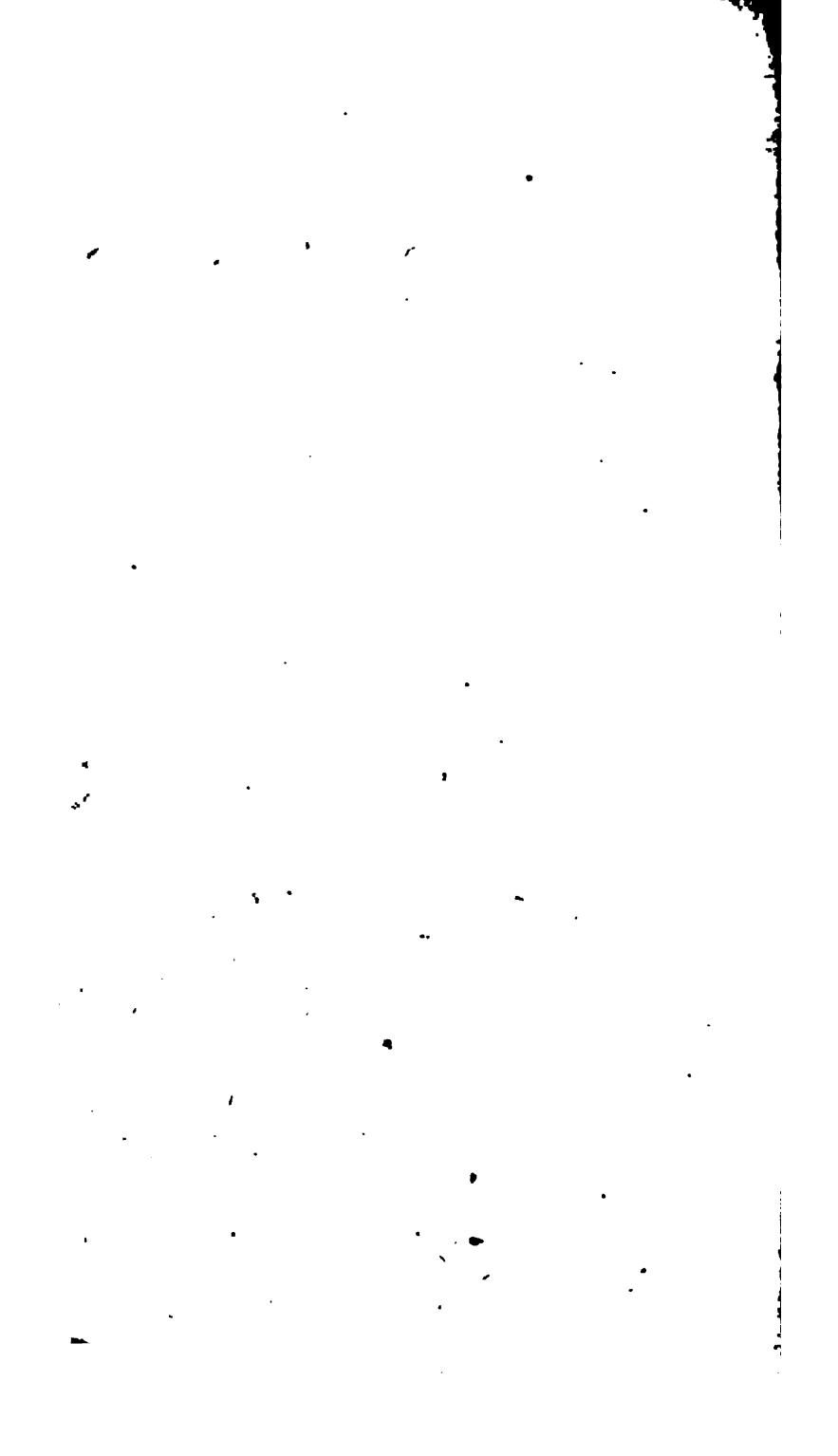
No. of sections, where located	Contractor	Miscellaneous	Amount.
29	Joseph R.	Grubbing, \$12,	508 47
30	Parks &		200 70
32	Dickey &		164 62½
33	Cochran &		280 30½
35	Michael	Embankment of earth, 657 at 12	681 42½
	Wiley &		259 50
	P. & A. K.		796 02½
	Hugh M.	ry, \$28 75,	\$322 75
do	No. 2,	day, 30 75,	324 75
do	No. 3,	do 5 75,	397 75
			<u>\$947 25</u>

Stopping leak on Contractor, \$150 00

Amount of work  
 salt wells, 1,500  
 1,772 89  
 923  
 947 27  
 k. 5 98  
 nk, 150  
 1,026 93  
 t at the mouth of  
 7, 75,000

Filling in four  
 Amount of work 122,723 69  
 \$412,907 67

Amount of work of  
 alle- 59,000—181,723 69  
\$ 281,183 98



ST. Eastern Division, Pennsylvania canal;  
Lairsville. \*

No. of sections	MISCELLANEOUS.	Amount,
No 79		\$532 37½
" "		555 53½
" "		1368 75
80		1926 63
81		1847 40
82		1733 10
83 91		3766 65
84		6496
85 SR		5550
86 51		210
87 SI	lime for locks	3291 70
88		
89 31		88869 71
90 11		
91 OP		
	cts. 520 yards embankment	5059 87½
	at 75 cts. 700 yards embank-	
	ys hauling water at \$1	11342 25
	offer dams at \$300 each, 780	21877 40
ON	at 50 cts. 252 yards embank.	
201 11	25	1908 66
201 11		2159 95
		42348 23
		11606 ;
	lank added 3, 7431 lbs. iron	5162 60
		16768 60





Culverts on Sections.	Price.	Miscellaneous.	Amount.
No. 80	\$ 25		130 17
85	23	Puddling 156 yds at 25 cts	391 28½
86	50	do 116 25	161 02½
88	50		218
95	25	do 106 do	512 78
96	37½	do 32 do	99 10
99	50	do 38 do	177 26
101	50	do 109 do	328

Excavation of rock.	Price.	Amount.
		\$ 360
700	45	535
		720
2047	50	1383
		<u>22,998</u>

Amount	4,813 17
	2,409 87
	4,978 80
Amount viers,	310 18
lock uses,	841 35
do ments,	2,998 00
do cts,	42,348 23
	<u>\$349,556 31½</u>



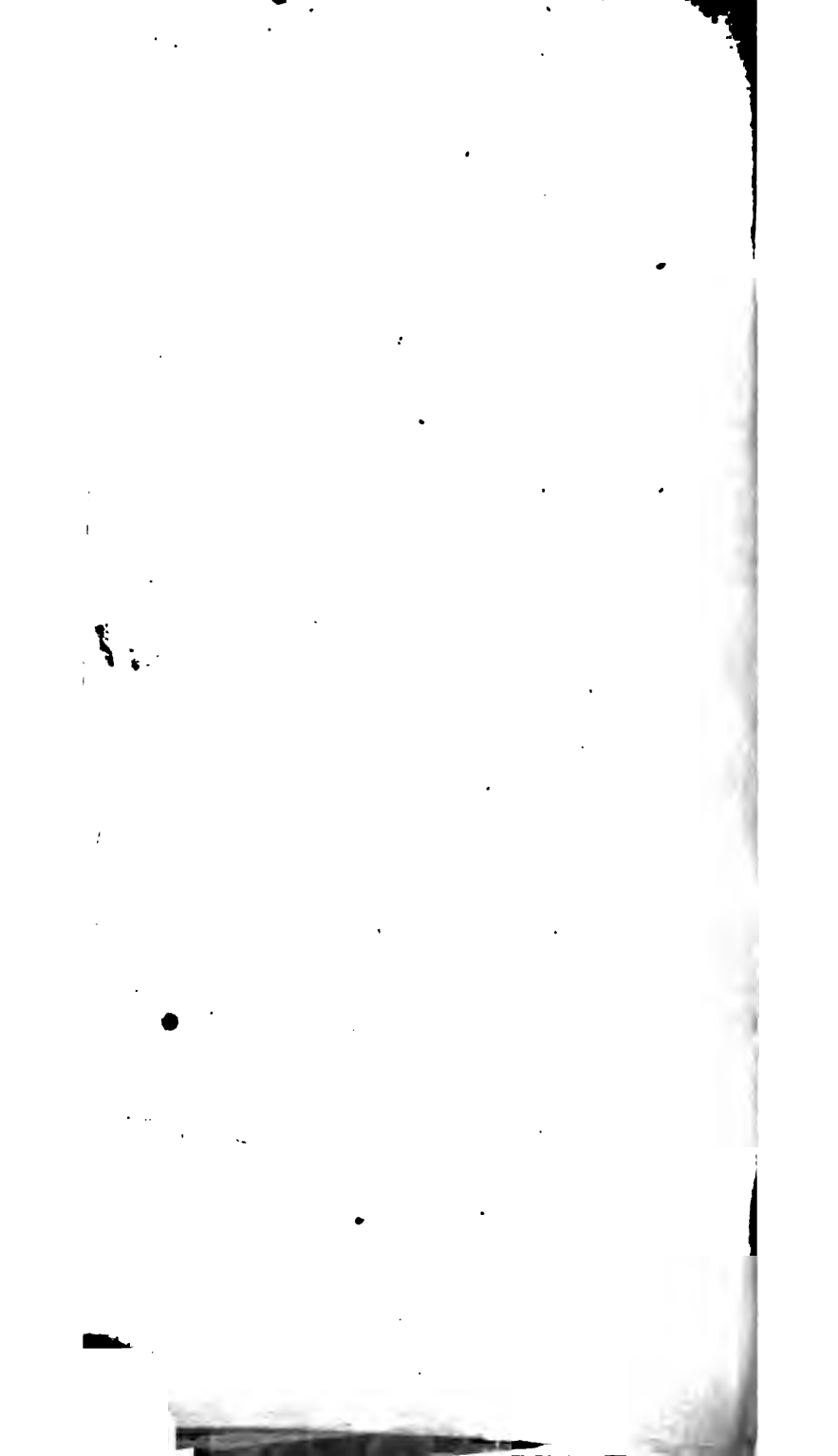
18

## NO. 9.

LIST of contracts entered into on the Allegheny line, from section No. 1 to No. 92, Western Division Pennsylvania canal, from the 1st of November, 1827, to the 1st of November, 1828.

## SLIPS.

Slips, &c.	Contractors' names.	Date of contract.	Price per cubic yard.		Wall per perch.
			Earth.	Rock	
Slip &c. on section No. 8 and 9	N. West,	1st Feb.	10	50	12
10	S. R. Richards	6th Dec.	10	50	30
13	Abner H. Polly	6th April	9	50	10
25	Hugh Carson	1st Feb.	8	50	11 grub est en.
42	J. and S. Morrison	4th April	9	45	do
do	George W. Trout	do	9	45	do
44, 45, 46, 47	Daily and Barrett	17th April	12	50	10 pad'g &c. c.
59 & 60	J. and J. Peacock	20th Oct.	12	50	
67 & 68	Lemuel Castle	21st April	9	40	9
do	James Hare	15th June	12	40	8
49, 50 and 51	A. Stewart	23d Aug.	12	42	12 for complete
Clearing inundated land sec 53	James Miller	20th Nov.	11	11	do
Repairing bridge &c on sec 91					



No 6 and 7, 9

Road on section No. 97 and 98  
 Grubbing do do 100  
 Road on section No, 105  
 do on do 108  
 Fence on sect do 109  
 do from do 93 to 113,  
 do around yard of lock No 7  
 Puddling at locks No 7 and 8  
 Filling breach on section 96  
 Removing houses on section No 104  
 do houses on do do 103  
 do timber on do do 106  
 Puddling on section No 110  
 Painting bridges on sects. 104, 109  
 do do 113  
 Cutting stone for culvert on sect.  
 No 109,  
 Iron for aqueduct at Pittsburg,  
 Bason between locks No. 9 and 10  
 Excavation &c. at lock No 7  
 Water job at lock No 10,  
 Water lime,

Spencer & Hagerly,  
 Crawford and Everett,  
 Edward Riley,  
 James Lonergan,  
 Burns and Black,  
 Jacob Cups,  
 Benjamin Vandegrift,  
 David Sanger,  
 David Sanger,  
 Nathan Waldo,  
 Enoch Jones,  
 John Gibby,  
 Matthew Murdock,  
 Thomas Flood,  
 F. W. Kane,  
 J. W. Kane,  
 Edward Downy,  
 Le Barron & Lothrop,  
 Provost, Byrne & Co.  
 David Sanger,  
 Provost, Byrne, & Co.  
 John Keen,

5 per rod  
 30 for completing  
 Grub. \$100, ex. earth, 8cts R. 3p  
 48 for completing  
 87 1/2 cts per rod  
 80 cts per perch  
 27 00 for completing  
 27 cts per cubic yard  
 20 cts per cubic yard  
 72 50 for completing contract  
 12 00 for completing contract  
 6 00 for completing contract  
 20 cts per cubic yard  
 24 50 each  
 24 50 for completing  
 25 cts per superficial foot  
 10 cts per pound  
 3 00 per perch of stone work  
 exca. at engineer's est.  
 10 cts per yd ex. & 14 per yd em.  
 Estimate of the engineer  
 25 cts per bushel.

22nd Feb  
 30th May  
 26th Sept  
 14th Dec  
 22nd Feb  
 22nd Feb  
 5th Dec  
 20th May  
 16th Sept  
 27th April  
 5th Dec  
 11th Jan  
 5th Jan  
 17th Sept  
 26th Sept  
 26th Nov  
 14th June  
 5th July  
 11th Feb  
 5th July  
 30th Nov

Lock house No 3  
 No 6 and 7, p  
 Road on section No. 97 and 98  
 Grubbing do do 100

Spencer & Hagerly,  
 Crawford and Everett,  
 Edward Riley,  
 James L. Merran.

5th do  
 22nd Feb  
 30th May  
 26th Sept

284  
 5 per rod  
 30 for completing  
 Grab. 8100, ex. earth, 8cts R. 50

Lock House No. 24	Robert Denry	5th do	294	do	each
No 6 and 7, 8	Spencer & Hagerty,	5th do	5	per rod	
Board on section No. 97 and 98	Crawford and Everett,	22nd Feb	30	for completing	
Grubbing do do 100	Edward Riley,	26th May	Grub. \$100, ex. earth, 8cts R. 3p		
Road on section No, 105	James Lonergan,	14th Dec	48	for completing	
do on do do 108	Burns and Black,	22nd Feb	87½	cts per rod	
Fence on sect do 109	Jacob Cups,	22nd Feb	80	cts per perch	
do from do 93 to 113,	Benjamin Vandegrift,	5th Dec	27	00 for completing	
do around yard of lock No 7	David Sanger,	20th May	27	cts per cubic yard	
Puddling at locks No 7 and 8	David Sanger,	16th Sept	20	cts per cubic yard	
Filling breach on section 96	Nathan Waldo,	27th April	72	50 for completing contract	
Removing houses on section No 104	Enoch Jones,	5th Dec	12	00 for completing contract	
do houses on do do 103	John Gibby,	11th Jan	6	09 for completing contract	
do timber on do do 106	Matthew Murdock,	5th Jan	20	cts per cubic yard	
Puddling on section No 110	Thomas Flood,	17th Sept	24	50 each	
Painting bridges un sects. 104, 109	F. W. Kane,	26th Sept	24	50 for completing	
do do do 113	J. W. Kane,				
Cutting stone for culvert on sect. No 109,	Edward Downy,	26th Nov	25	cts per superficial foot	
Iron for aqueduct at Pittsburg,	Le Barron & Lothrop,	14th June	10	cts per pound	
Bason between locks No. 9 and 10	Provost, Byrne & Co.	5th July	3	00 per perch of stone work	
Excavation &c. at lock No 7	David Sanger,	11th Feb	10	cts per perch of stone work	
Water job at lock No 10,	Provost, Byrne, & Co.	5th July	10	cts per yd ex. & 14 per yd em.	
Water lime,	John Keen,	26th Nov	25	cts per bushel.	

{ 3 00 per perch of stone work  
 exca. at engineer's est.  
 10 cts per yd ex. & 14 per yd em.  
 Estimate of the engineer  
 25 cts per bushel.

14

17

19

26

29

33

50

48

69

70

71

71

74

6

7

8

15

16

17



## LIST of between the first day of November

No. of Sections.	Date of Contract.	Miscellaneous.
19	S	Towing path bridges.
26	M h Dec	1 62½ per perch 340 woodw'k
29	H 9th Sept	1 62½ do 40 do
35	C 2th Aug	2 50 do
50	V 9th Sept	1 62½ do 40 do
58	D 1st Jan	Excav. earth 12s, pudd. 10 cts
69	Jo	Excav for foundation of bridge
70	J. Nov	12½ cents per cubic yard
71	J. Nov	do do
71	Jo Feb	Excav of drain 12 cts per c y
74	Jo April	do do and foundation of bridge 12 cts per c y for earth and 50 cts rock
6	Po	Ex. bridge foun. 14 cts c y'd
7	P. Dec	do do 12 earth 50 rock
8	M April	do near lock No 1 earth 12 c
13	M h June	do earth 10 cts, grubbing 2 20
16	D Dec	do 12 do 8
16	Dec	do 11 do 12
17	Jo Dec	Protection wall 80 cts pr per. puddling 20 cts, excav earth 10 cts per cubic yard
	Oct	Two bridges—\$145 each
	h Jan	Protection wall one dollar per perch, puddling 18 cts c y
		Water Lime.
	h Nov	20 cts per bushel for part and 12½ cts for the other

Port on sea

ert No.

on e

Wass  
Fibest  
John V  
M'Enti  
Daniel  
Reiley  
Reiley  
Smith  
Blake  
Wals  
James  
d  
Wils  
Edno  
Edm  
John  
Hug  
Rak  
Wm  
Jaa  
Geo

Gr  
Je  
Su  
M

ert on section No. 80

do	85
do	86
do	88
do	94
do	95
do	96
do	99

ert No. 1 on section 10

2	do	10
---	----	----

on section No. 10

do	108
do	110
do	117
do	118
do	121
do	123
do	

Johnson and Kallin

Firbush and Burke

John M'Elroy, & C

M'Entire, Clarke

Daniel Gilmartin,

Reiley and Kenne

Reiley and Kenne

Smith and Gallag

Blakely and Lewi

Walsh and Collir

James Lonergan

do do

Wilson and Pea

Edmund Burke,

Edmund Burke,

John Henry,

Hugh and John

Raley and Colli

Wm. W. Marti

Jas. and W. A

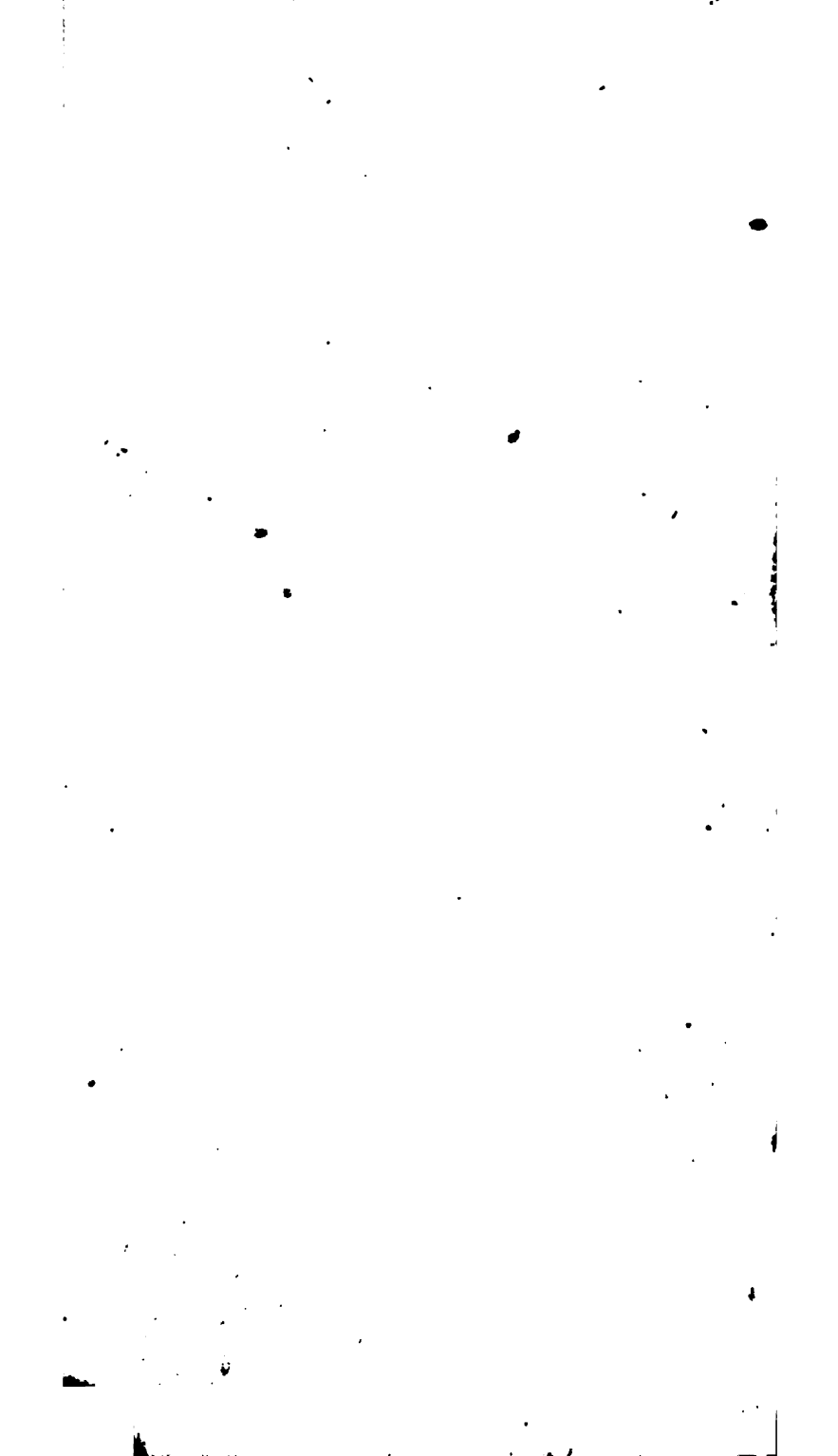
Geo. L. Dickey

Geo. and J. T

Jones and Sa

Sutton and M

Merills and 7



## No. 14.

*Statement of the amount paid for damages on the Western Division of the Pennsylvania Canal, since the report of last year.*

TO WHOM PAID.	AMOUNT.
John Moore	\$ 16
Henry Richabaugh	6 75
Thomas Hickenlooper.	20
Binnaman and Fay	300
George Space	40
Thomas M'Mullen	8
Michael Risher	32
Henry Fore	20
William M'Kee	35
Joseph Hunter	40
Owen Boyle	20
David Brinnaman	576
Robert Smith	2 50
Robert Kelly	12
John Gallagher	50
William Beard	12
William M'Clelland	12 50
William Drummons	15
William M'Farland	400
Thomas Johnston (of John).	270
E. Jellison	20
Joseph Barnes	20
John Drummond	350
L. S. Waterman	20
Wilson Crawford	152
James Munden	50
James Sharp	20
Andrew Gallagher	12 50
Enoch Jones	72 50
James M'Kibbon	38

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\$ 2,641 75

*Damages agreed to be paid*

To A. Kirkwood	225
George Hawk	110
Robert Park	350
	<hr/>
	\$ 685

## No. 15.

## LIGONIER LINE.

*A list of persons employed in the Engineer Department,*

Engineer	177 days ending	24th Nov. 1828,	at \$2000	per annum:
James D. Harris	177	24	\$ 50	per day.
Atlas Lacock	177	24	2	do.
Caleb A. Alexander	45	24	2	do.
James Robinson	177	24	1 50	do.
Thomas P. Enoch	47	24	1 50	do.
John Murrey	132	10 Oct.	1 50	do.
James Robinson	87	29	1	do.
James Finton	69	8 August	1	do.
John Flack	108	24 Nov.	1	do.
James M'Fwen	16	24	1	do.
Curtis Dixon	32	24	1	do.
Benjamin Lawrence	69	8 August,	1	do.
do chain-man,	69	do.	1	do.
do.	60	5 do.	1	do.
John Murrey,				
Edward Wilkinson,				
boatman & camp keeper,				

The above is a list of persons employed in the engineer department, on the Ligonier line, western division Pennsylvania canal, up to and including the 24th November, 1828, with the length of time served by each in his respective capacity.

JAMES D. HARRIS, *Engineer*

November 28, 1828.

## ALLEGHENY AND PINE CREEK LINES.

*A list of persons employed in the Engineer Department.*

	Engineer	193 days ending	31st May, 1828, at	\$ 1400	per annum.
James D. Harris	Assistant engineer	6 months 11 days	31	60	per month.
Atlas E. Lacock	do.	6 months 11 days	31	60	do.
Andrew D. Harris	do.	6 months 11 days	31	60	do.
Francis Reno	do.	188 days	24 Nov.	2	per day.
do.	do.	45	24	2	do
Wilkins M'Nair	Principal assistant eng'r	188	24	4	do
Andrew D. Harris	Rodman	193	31 May	1 50	do
James Robinson	do.		31	1 50	do
Caleb A. Alexander	do.	186	10 October	1 50	do
James S. Keen	do.	325	10	1 50	do
Wilkins M'Nair	do.	79	23	1 50	do
Patrick Griffen	do.	33	24 November	1 50	do
James Steel	Superintendent masonry	152	24	3	do
Joseph Coltari	Axeman	163	13 June	1	do
William Sheehy	do.			1	do
Edward Sheehy	do.	182	24 November	1	do
James Stewart	do.	45	5 August	1	do
Patrick Griffen	do.			1	do

Clerk of the western division, R. L. Keen, \$ 3 a day.

The above is a list of persons employed in the engineer department on the Allegheny and Pine creek lines of the western division of the Pennsylvania canal, from the 21st November, 1817, to the 24th November, 1828, inclusive, with the length of time served by each in his respective capacity. Since the 31st May, one party has done the business on each line. In future one party will be sufficient for both until completed.

JAMES D. HARRIS, Engineer.

November 26, 1828.

CANAL REPORT.

Names of persons employed.	In what capacity.	Month began.	Day	Month ending.	Day.	No. days served.	Wages per day.
Charles H. Rondolph	Assistant engineer	August	16	December	15	108	\$ 2 00
Michael Kennedy	do	do	16	do	15	108	2 00
D. R. Bishop	do	do	16	do	15	108	2 00
Hugh Smith	Superintendent	do	16	do	15	108	3 00
William Moore	Rod man	do	16	do	15	108	1 50
William Heckinlooper	do	do	16	do	15	108	1 50
James G. Brown	do	do	16	do	15	108	1 50
Silas Fulton	Axeman	do	16	do	15	93	1 00
James McLaughlin	do	do	16	do	15	93	1 00
Edward Day	do	do	16	do	15	93	1 00
William Hamilton	do	do	16	do	15	93	1 00
Nathan McDowell	do	do	16	August	23	5	1 00

KISKEMINETAS LINE.

*Persons employed on the Engineer Department of this line.*

IN WHAT CAPACITY.	WAGES.	IN WHAT CAPACITY.	WAGES.
William B. Foster, jr.	Principal assistant \$ 3 50 per day.	James E. Day	Rod-man 1 50 do.
John B. Miles	Sub assistant 2 do.	Silas Fulton	Axeman 1 do.
E. R. Livermore	Sub assistant 3 do.	James B. Park	do. 1 do.



## Series 2.

## No. 1.

*To the board of Canal Commissioners,*

GENTLEMEN :

Having received during your session in June last, notice of my appointment as superintendant of the French creek feeder, and also instructions relating to the duties of the said appointment, I immediately proceeded to the line, and upon receiving from General Philips the books, contracts and papers, relating to that part of the feeder then under contract, I commenced the duties assigned me.

The first estimate which it became my duty to liquidate was dated the 1st July. At that time (with the exception of three or four sections) it was believed that the number of hands then employed, would have been sufficient to have completed the work, if not within the time specified in the contracts, at least very soon afterwards.

It was, however, found that early in the month of August the number had been considerably diminished, the cause of which was attributable to a large portion of them being at home, engaged in agricultural pursuits, and compelled to attend to their harvests.— About the first of September a sufficient number was again believed to be on the line; but the loss of one month when the weather was most favorable for canalling, and owing subsequently to an unusual quantity of wet weather, the progress of the work has been unavoidably retarded; consequently this division is not as had been anticipated entirely completed. Twenty sections however out of thirty five have been reported as completed, and paid for accordingly. With a view of hastening the completion of the contracts, notice was given to the contractors, at the payment of the October estimate, that one other estimate would be paid on the 15th of November, after which no further payments would be made until the completion of their contracts. This course has had a most salutary effect. The extreme wetness of the season has occasioned a constant continuation of hill slips on four particular sections, and although two of them would require but six days of dry weather to complete them, yet owing to the unsettled state of the weather, I have deemed it prudent to stop the contractors, until a more favorable time shall arrive for adopting such a plan as may be best calculated to ensure security to the work, reserving on behalf of the state a portion of the retained percentage, to ensure their completion at the contract prices. With the exception of these four sections, and two others, I think this division will be completed on the first of January next. For further particulars I refer you to the report of the engineer, which together with various statements furnished in compliance with the request of your secretary, will give all the necessary information with regard to this part of the line.

In compliance with a resolution of your board, I sold out on the 28th of August last, a section of ten and one half miles, designated the Western division, and commencing at the southern termination of the former letting, (passing French creek by an aqueduct of two hundred and seventy feet in length,) and terminating near Muddy run, being about two miles short of Conneaut lake. The course of this division of the Feeder has been delineated, and the sketches already presented to the board. The contracts were immediately entered into, and the work commenced within fifteen days from their dates. A list shewing the names of the contractors together with the contract prices, and including that for the aqueduct, is herewith presented. The estimate on this division taken on the first inst. shews in amount \$8,331 10, which has been paid, deducting twenty per cent, and will also tend to shew the progress of the work. Having laid off this division in sections of not more than eighty perches in length, and having thereby increased the number of contractors, by giving but one section to each, I can say with great confidence that this division, with the exception of the aqueduct, will be finished within the time specified in the contracts, to wit, on the 1st of October next. Messrs. Collums, the contractors for the aqueduct, are men of good standing in society, and proverbial for industry and enterprise; I have therefore every thing to expect from them, and rely most confidently on the early completion of their contract.

The termination of this division being short of that authorised to be let, it becomes necessary for me to explain the reason. Soon after passing Muddy run, the country presents itself in shapes which rendered the tracing a line of feeder a more difficult matter than had been anticipated.

The marsh between Muddy run and Conneaut lake, and indeed the country for some distance round the lake, consists of a series of ridges divided from each other by swamps. Should the lake be embanked to a height of eight feet above its common surface, according to the original plan for the feeder, the feeder would be brought into it, following the upland which connects with the eastern shore of the lake, and all the swampy outlets from it, secured so as to prevent the escape of water from the lake, thus constructed into a reservoir. If on the contrary embanking the lake should be found impracticable, the feeder must take the most direct course to the summit, which must be done not by following the course of any of these insulated ridges, but by crossing them, and the marshes which divide them, by a series of alternate excavations and embankments. The reason for making the course as direct as possible, being to prevent lowering the summit, which an increased length of feeder, preserving the necessary descent would of course occasion. If the lake were embanked, then the feeder beyond Muddy run would not have the same location, or the same length which it must have if it were embanked. It becomes necessary then to determine this preliminary, which by the last report of the engineer who reported the project, was spoken of in very general

terms: It was therefore determined to stop the location at Muddy run, and make as early as possible other examinations in that neighborhood. A party for this purpose was formed and commenced their operations on the 27th of October, and terminated about the middle of November, having extended their examination with a view of ascertaining the propriety of adopting the lake as the summit and reservoir, and necessarily so as to the two summits connecting with Big Conneaut and Chenango creeks, of which a detailed report accompanied with the necessary plans, &c. will be made and presented by the engineer, Mr. Ferguson, as early as possible.

All of which is respectfully submitted.

J. MITCHELL, *Superf.*

Meadville, 15th November, 1828.

## No. 2.

*Report and Estimate of the work remaining to be done on the French creek feeder, by James Ferguson, Engineer,*  
To JOHN MITCHELL, Esq.  
*superintendent of the French Creek feeder.*

SIR,

I submit the following estimate of the probable expense of completing the part of the feeder now under contract. viz.

*For the part on the east side of French creek.*

Excavation on sections 2 3 4 15 16 18 19 20 26 30 31 32 and 33.—46,918 cubic yards, amounting to	86,388 00
Embankment on sections 3 4 16 19 20 24 25 26 and 30 including bridge embankments, 2,911 cubic yards, amounting to	4,242 00
Inside wall on sections 2 3 5 12 17 18 19 20 30 31 33 and 34.—4,702 cubic yards, amounting to	5,877 50
Culverts, sums required for their completion, being partly 20 per cent. of the contract prices retained until they shall have been proved	3,060 27
Bridges, sums required for their completion. The unfinished bridges being on sections 3 4 30 35 and one in the village of Meadville,	760 00
Fencing,	2,000 00
	<u>822,327 77</u>

In the above estimate I have not included the contemplated basin at this place, nor the price of re-making roads, where their sites

have been occupied by the feeder. The expense of inside wall is an unexpected and unforeseen one, which has not made part of any previous estimate: it becomes necessary as a protection against quick sands, where the bank out of which the canal has been cut, rested upon a substratum of this treacherous material.

Of the amount stated as necessary to complete the culverts on the line, \$1,066 27 is made up of the sums retained on the culverts until they shall have been tried, by admitting into the feeder above them, sufficient depth of water to prove their soundness.—The remaining \$2,000 includes the expense of works in the neighborhood of Magaw's mill. The usual precaution of furnishing water lime to the contractors, that the precise quantity used, and the quality of the cement made from it might be certain, was not adopted here, and therefore, so much confidence cannot be entertained in those parts of the work which require the use of this material. The sums reserved on the culverts will however, be entirely adequate to render them secure. The well fall and culvert at Magaw's mill have been more expensive than was expected; and it is matter of question whether a cheaper disposition of the mill run might not have been made than that which I have attempted.

The cost of this part of the feeder, being a length of 8.81 miles will be \$126 059, making an average cost of \$14,300 per mile.

In making this estimate the sections which have been accepted are set down at their full value. They being sections 1 5 6 7 8 9 10 11 12 13 14 17 21 22 23 24 27 29 34 and 35, the other sections are rated at the value of the estimate of the 15th October last. The bridge and culvert estimate amount nearly to the sum which will be required for their completion.

The aqueduct across French creek, \$18,910 00

*The part of the feeder on the west side of the creek.*

Excavation and embankment including bridge embankments at contract prices.	\$78,163 00
13 Farm bridges,	1,300 00
3 Road bridges,	705 00
Wast wiers,	920 00
Fencing,	5,200 00

Cost at contract prices,	\$84,288 00
Amount estimated to be due for work done 1st November,	8,531 00

Sum necessary to complete this part of the feeder,	\$75,957 00
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This sum does not include the expense of re-making part of a county road which will be covered by the feeder, nor of a small culvert on section 66, but contains every other expense necessary to complete this part of the feeder. The whole amount required will be as follows:

# CANAL REPORT:

47

For the part on the east side of French creek,	\$22,327 77
For the aqueduct,	18,919 00
For the part on the west side of French creek,	75,957 00

\$117,194 77

Truly your obedient servant,  
J. FERGUSON,  
*Engineer.*

*Meadville, November 26, 1828.*

## No. 3.

To JOHN MITCHELL, Esq. *Superintendent  
of the French creek feeder.*

SIR—In executing the duties required from the engineers on this section of canal, from the date of the last annual report, the following persons have been employed for the times and at the rates hereinafter specified, to wit

B. B. Vincent, assistant Engineer to 1st June, \$ 2 per day,

B. B. Vincent, principal assistant engineer from 1st June to present time at \$ 2 per day.

W. Pollock, assistant engineer from 1st June to present time at \$ 2 per day.

I. D. Torbet, assistant engineer from 1st June, at \$ 2 per day.

I. D. Torbet, target bearer from 15th February to 1st June at \$ 1 50 per day.

Robert Neal, target bearer from 1st June to 8th October, at \$ 1 50 per day.

Kinnaird Hamilton, target bearer from 1st June to present time at \$ 1 50 per day.

H. I. Luden, target bearer from 1st June to 10th October, at \$ 1 50 per day.

H. I. Luden, target bearer from the 27th October to 15th November, at \$ 1 50 per day.

H. R. Vincent, target bearer from 27th October to 15th November, at \$ 1 50 per day.

Robert Neal, chain man from 15th February to 1st June, at \$ 30 per month.

K. Hamilton, chain man from 15th February to 1st June, at \$ 30 per month.

J. M. Stockton chainman from 3d June to 26th July, at \$ 20 50 per month.

Alva Mallary, chain man from 3d June to 26th July, at \$ 20 50 per month.

William Rundle, axeman from 3d June to 26th July, at \$ 20 50 per month.

Robert Erwin, axeman from 3d June to 26th July, at \$ 20 50 per month.

Robert Erwin, chairman from 8th October to 20 November, at \$ 30 per month.

J. M. Stockton, chairman from 27th October to 20th November, at \$ 0 66 2-3 per day.

J. Tortie, chairman from 27th October to 20th November, at \$ 0 66 2-3 per day.

Amberson Williams, axeman from 27th October to 15th November, at \$ 0 66 2-3 per day.

W. Lefevre, axeman from 27th October to 15th November, at \$ 0 66 2-3 per day.

John Mitchell, superintendant, at \$ 3 per day.

John Ferguson, engineer, at \$ 2,000 per year.

Clerk, \$ 1 50 per day.

From the 22d December to the 15th of February the inspection of the line was confided to Mr. Vincent, he being the only person retained during that period. After that and until the 1st of June the party consisted of myself, Mr. Vincent, Mr. Torbet, and two chainmen. After the 1st of June, the party was augmented for the purpose of prosecuting the location on the west side of French creek, and the same establishment continued until the 26th July, at which date the location had been completed to Muddy run; or, within about two miles of Conneaut lake. At this point the country presented difficulties which had not been anticipated, rendering it impossible to determine the best site for the feeder until the approaches to the summit had been more accurately examined. These examinations were commenced on the 27th October, and will have been completed in a few days, after which it is intended to retain only Mr. Vincent, one target bearer and one chainman. I respectfully suggest to you the propriety of having the rate of Mr. Vincent's compensation settled by an order of the board at as early a period as may be convenient.

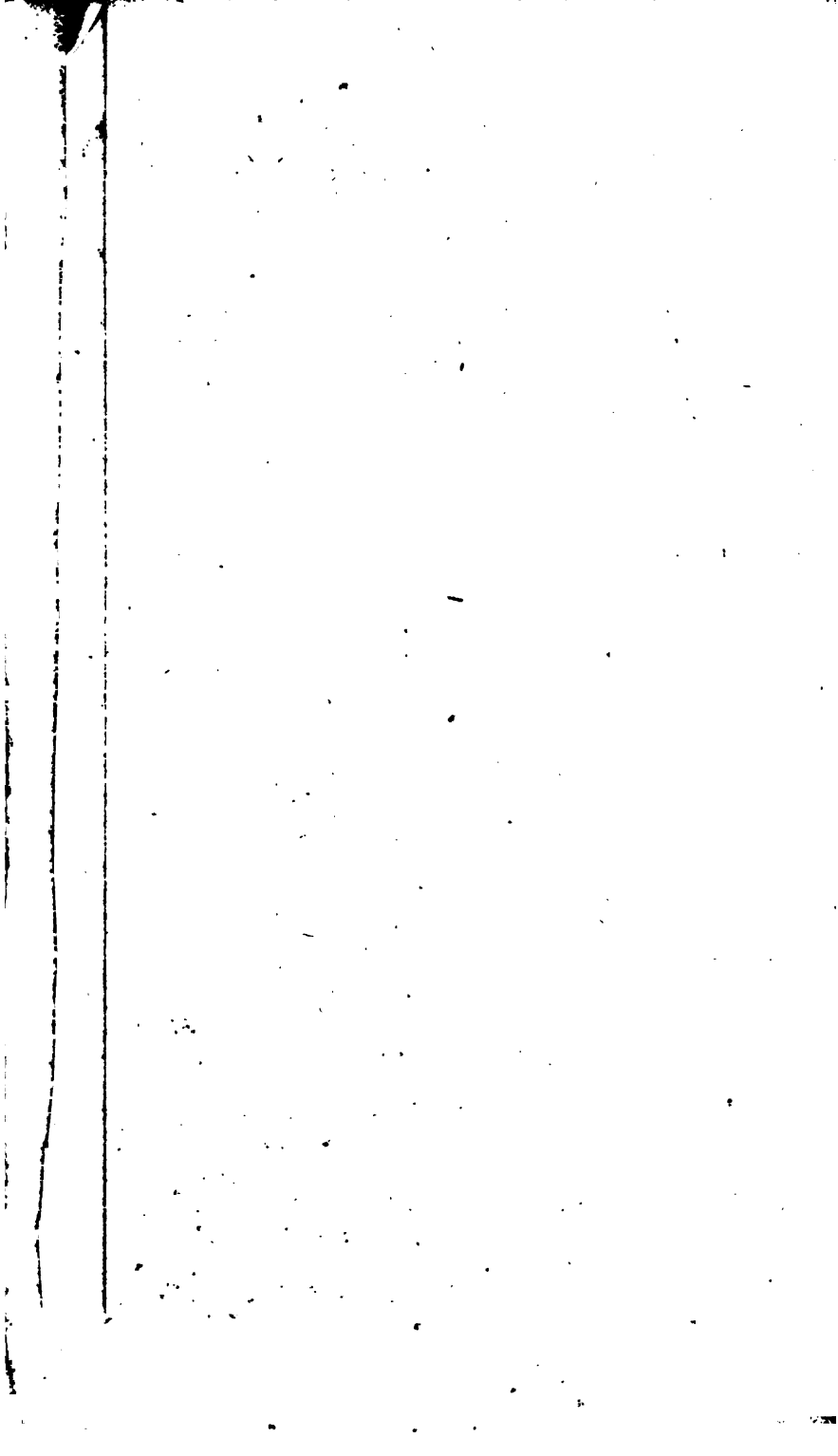
I am, Sir, respectfully

Your ob't serv't.

J. FERGUSON

Engineer.

Meadville, November 16th, 1828.







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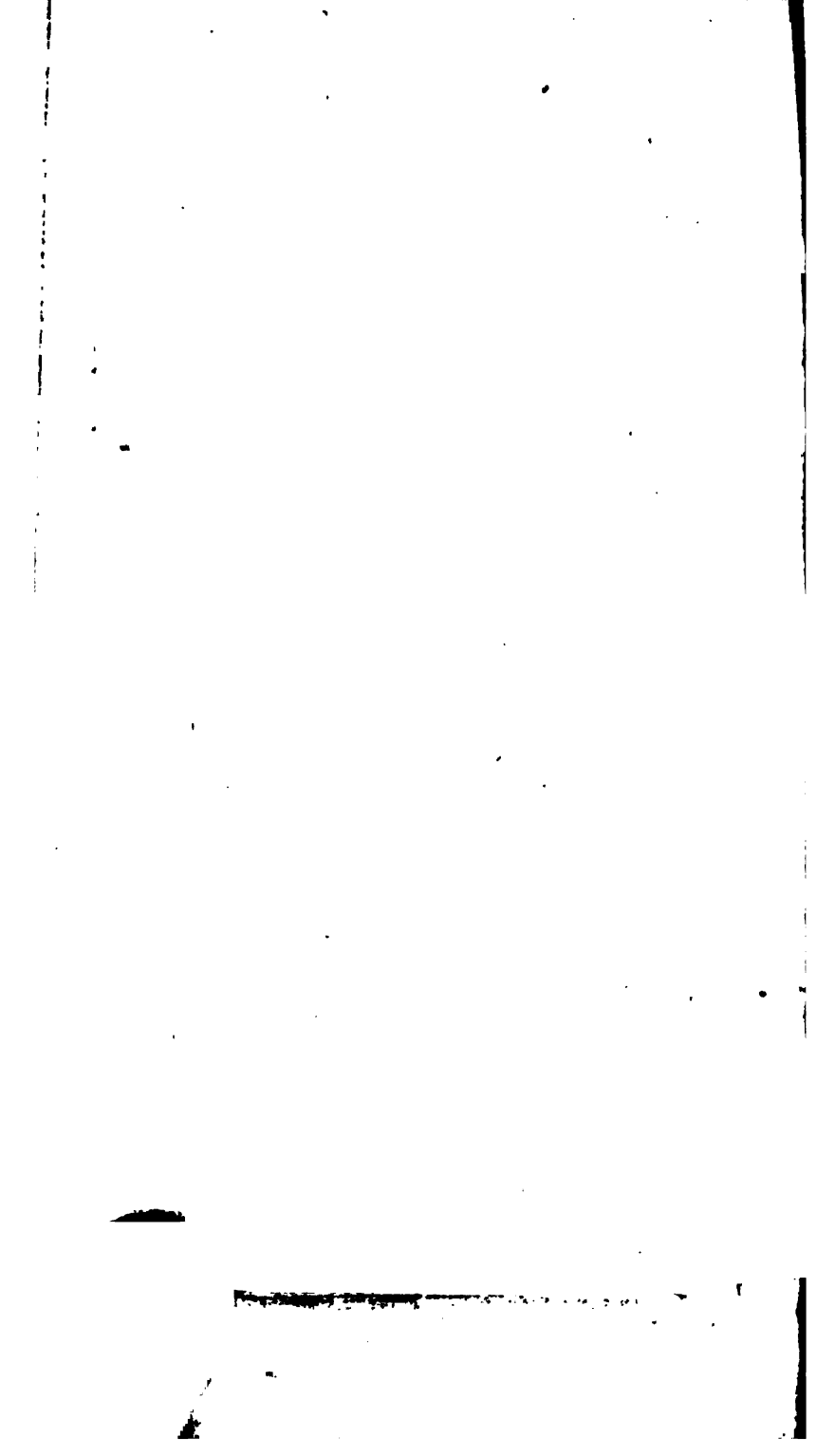
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## No. 6.

## FRENCH CREEK FEEDER.

*A list of damage contracts entered into from the 1st November, 1827, up to the 1st of November, 1828.*

	Am't. of contracts,	Am't. paid,
Francis Ross, for removeing house and releasing damages,	240 00	
John Birth, for removing fence,	10 00	10 00
John Dickson, for removing house,	85 00	85 00
W. A. V. Magaw, removing building	50 00	50 00
David Campton, for removing buildings,	100 00	100 00
Simon Shoemaker, for removing buildings,	35 00	35 00
Alexander Shaw, removing buildings and releasing damages,	230 00	100 00
John Dickson, damage to lo's,	10 00	10 00
Nelson Smith, for making road,	34 76	34 76
James F. Randolph, removing buildings and releasing damages,	260 00	260 00
John Patterson, removing house and making road	57 50	50 00
Taylor Randolph, removing barn,	20 00	20 00
Lot Lewis, securing stable from injury by the canal,	1 50	1 50
W. Shearman, repairing road,	2 50	2 50
Henry Boal, do do	5 00	5 00
William M'Clure, removing fence,	5 00	5 00
Richard Dennis, for copper pipes to convey water to tanyard,	57 81	57 81
John D. Gibson, a house and lot purch a now the property of the state,	450 00	450 00
John Reynolds, a lot do do	100 00	100 00
Abraham Sarber, removing two houses,	74 56	74 56
Henry Boal, for making turnpike road,	850 00	850 00
Henry Krowl, for making road,	713 04	713 04
John Patterson, for removing bridge and making road,	20 00	
John Looper, lot purchased, now the property of the state,	270 00	260 00
Artimus Smith, removing fence,	8 00	8 00
John Crosby, removing barn,	5 00	5 00
Joseph E. Holmes, clearing a site for bridge,	5 00	5 00
Lewis Morton, do do	4 00	4 00
Amos Pearson, damage to garden,	8 00	8 00
Robert Mead, removing fence,	8 00	8 00
Levi L. Morris, removing shop,	28 00	28 00
R. Patch, removing house,	10 00	10 00
Anna Derickson, removing fence, &c.	12 00	12 00

Timothy Alden, removing fence.	5 00	5 00
J. C. T. McClelland, damage to lot,	6 00	6 00
S. B. Martindale, removing fence,	2 07	2 00
William Latta, building bridge,	3 10	3 00
Abraham Sarber, removing fence,	5 25	5 25
Daniel Perkins, removing house.	20 00	20 00
Daniel Bemis, a road contract, and bond to the commonwealth to keep the state clear of future damage,	750 00	
Damages assessed, none,		

## Series 3.

### No. 1.

*Report of James Clark, acting commissioner on the Juniata dist-*  
*ri-*

JUNIATA CANAL OFFICE,

Lewistown, December 5, 1828.

*To the board of canal commissioners.*

GENTLEMEN,

Although at the date of the report which I had the honor of submitting to the board on the twenty-fourth day of November, 1827, there was but the small sum of twenty-two thousand two hundred and sixty-two dollars and fifty-eight cents paid to contractors for work done on forty four and a half miles canal. Yet in conclusion, an opinion was risked that this canal would "be ready for the reception of boats early in the spring of 1829." This hope would have been realized if the character of the Juniata had stood as fair for health as other parts of the state. But a great degree of sickness along the canal line, and among the citizens of the neighborhood during the last summer and autumn together with the exaggerated reports of the sickness abroad, produced, as a necessary consequence such a scarcity of laborers, as to paralyze the efforts of the most energetic contractors, and to postpone the hope of a final completion for a few months beyond the period that had been anticipated.

When the contractors began their operations in the fall of 1827, the wages of labour ranged from eleven to twelve dollars per month. But the prospect of such a large additional quantity of canal being thrown into market as was authorized by the law of last winter, together with the character of the Juniata climate, caused the wages of labourers to advance early last spring, and to continue throughout the summer and autumn from sixteen to eighteen dollars a month, and in addition to which the contractor—beside finding his hands in tools, drink and boarding—had to be at the risk of the precariousness of the weather. Such an occurrence induced many of the original contractors to abandon their jobs, and the

work had to be re-let at prices corresponding with the charge of circumstances.

Four sections have been added to this division of the canal, so as to extend it up to the outlet lock at Lewistown, and down to the Susquehanna division on Duncan's island. A view of the persons to whom, and the prices at which they have been let, together with the sections which have been re-let since the date of my last report are given in table A. By this table it appears that of ninety-five sections in which the canal is divided, thirty-seven have been re-let, and of these, seven have been sold thrice, and one of those has a fourth time changed contractors.

Table B. will exhibit the changes that have taken place in the incidental work. The failures to prosecute the contracts for the stone and wood work along the line had become so numerous that it was deemed necessary to re-let the abandoned jobs by public sale, which was done on the thirteenth day of May last. And thereby an open competition was invited which produced its necessary effect that of securing the completion of the work on as favourable terms as the change in the price of labour would warrant.

A comprehensive view of the present condition of the line is given in table C. and D, in which the whole quantity of work done—its cost—and the amount of money paid are shown. By these tables it appears that the aggregate of the engineer's estimates for work done amounts to five hundred and forty-five thousand, four hundred and eighty-eight dollars and thirty-three and a half cents. And at the money which has been paid on these estimates is four hundred and thirty-five thousand three hundred and seventy-five dollars, and twenty-nine and a half cents. Leaving one hundred and ten thousand one hundred and thirteen dollars and four cents of retained per centage, as a security for the completion of the contracts.

By the estimate of Col. Clinton the engineer, there appears to be three hundred and fifteen thousand, six hundred and forty dollars worth of work yet to be done on this division of canal.

Notwithstanding the complicated and embarrassing difficulties which have had to be encountered, the progress of the canal has been unremitted, and its final completion in the early part of next summer made almost as certain as any future event can be, which depends upon human exertion. The only part of the work which it is feared may retard the junction of the water of the Juniata and Susquehanna canals by mid summer, is the aqueduct over the Juniata river at the head of Duncan's island, but as it is in the hands of contractors who are believed to be energetic and persevering, it is hoped that the completion of the contract will not be delayed beyond the day specified in their agreement.

Two substantial dams, of eight feet high each, have been erected in the river, one at North's island, and the other at the head of the Long narrows. And in obedience to the law which requires the natural navigation to be left unimpeded, a cheap crib lock has

been erected at each dam, seventeen feet wide, and ninety feet long within the chamber thus not only making the natural navigation of the river equally safe, but much more easy than it has heretofore been at those places.

The original determination of prohibiting all buying and selling or re-letting and subcontracting of jobs, has been rigidly adhered to, and the personal attendance of the contractor on the work, but rarely dispensed with. The engineers have been constantly at their posts, and assiduously engaged in their duties. While the rights of the citizens in the vicinity of the canal, have been scrupulously regarded, thus by preventing, collisions between the contractors and land owners numerous claims for damages have also been prevented, claims which no doubt arise oftener, from vexatious provocations, than from any real injury done to property.

The accounting officers have decided that the removal of buildings from the canal line, even when done by contractors, shall be classed as damages. Independent of this kind of expense, there has been but six dollars paid for damages on the whole Juniata division previous to the first of the present month, and that was for the destruction of a small field of wheat. But including all that is called damages the amount paid has been one hundred and eighty two dollars.

The damages which may ultimately have to be paid is uncertain, it is however believed that the amount will not be great, as the citizens residing along the Juniata river have not only forborn making vexatious claims for damages, but their laudable public spirit has shown itself, in giving every facility in their power to the canal operations.

The new line of canal extending forty-five miles (from Lewistown to Huntingdon) was laid off into ninety sections and sold on the fifteenth day of October. And the stone and wood work was sold on the nineteenth day of November last. At these lettings the competition was so great as to give assurance that the jobs were taken on favourable terms for the commonwealth. In general however the prices asked for work are higher than similar work was let last year. With a view of keeping the whole force at disposal, concentrated on the old line below Lewistown the sales of the new line were deferred until late in the fall, and with the same view as well as to avoid as much as possible giving any cause of embarrassment to the treasury no estimate has been promised to the contractors before the fifteenth day of next January.

Another precaution which was adopted is the prohibition of contractors on the old line from commencing the new jobs assigned them until their old contracts shall be completed, hence there is as yet but little work done above Lewistown, and no money has been paid. The contractors are generally however building their *shanties*, clearing their ground, and making other preparations for an active prosecution of the work.

A list of the persons to whom the sections on this line have been assigned with the prices for each item of work, are given in table E. And a similar list of those who obtained the incidental work is given in table F. The waste wiers, lock houses and fences, have not been sold, it being deemed soon enough, eighteen months hence to erect the lock houses, and the construction of the fences, on the whole Juniata division is uniformly offered to the land owners at fixed prices. There will be on this new line of canal much difficult and expensive work. The aggregate estimate of the engineer, predicated upon the contract prices for the whole line, being eight hundred and ninety thousand two hundred and twenty-nine dollars.

Table G. gives the names, station, and compensation of every person who has been employed in the engineer corps and in the canal office since my last report. By which it appears that there has been sixteen thousand eight hundred and forty-three dollars and fifty cents paid for superintendence, clerk and engineer wages within the last year. The present organization of the engineer corps, as shown in table H is believed to combine as much skill and vigilance, efficiency and economy as can be had in works of such magnitude.

The whole disbursements at the Juniata canal office, for every thing since the commencement of the work to the present time is four hundred and fifty seven thousand nine hundred and fifty-three dollars and twenty-five cents.

The great progress that has been made in constructing the canal below Lewistown under so many discouraging circumstances is owing chiefly to the energy and perseverance of as worthy contractors as any canal line can produce and to the unwearied diligence of the corps of engineers and the clerk to the canal office.

Respectfully submitted,

JAMES CLARK,

*Acting Commissioner.*

## No. 2.

*Report of Dewitt Clinton, Engineer, upon the situation and progress of the Juniata division, (lower line) from the mouth of Juniata to Lewistown.*

### ENGINEER DEPARTMENT,

*Lewistown, Dec. 1st, 1823.*

*To the honourable board of Pennsylvania Canal Commissioners.*

GENTLEMEN:

I have the honour to submit the following report, on the situation of the works on the Lewistown division of the Juniata Canal.

The works remaining to be completed will amount to \$815,640, of which \$152,694, comprises the excavation, embankment, walling, &c. and the balance the mechanical parts of the work.

The certificates that have been issued in favour of the contractors by the Engineer Department, amount to \$545,488, out of which there has been \$9,849 forfeited to the state on account of sections having been abandoned. The value of the certificates added to the sum necessary to complete the canal, makes an aggregate expense of \$851,579.

The estimate in November, 1827, amounted to \$597,775, and the estimate for the continuance of the canal at Duncan's island to \$587,588. There is to be added a further sum of \$75,883, for works which were not included in the former estimate, viz.—Pier head at Lewistown, sections O and X, public and farm bridges, culverts, rope ferry, lock-houses, county and turnpike roads—and the alteration of 42 feet of lockage from wood to stone, this makes \$732,410, and falls short by \$118,853, of what will be the actual cost of the works. This deficiency in the original estimate is owing to the increased prices of the contracts—(as the estimate was predicated on the contract and assigned prices.) and the excavation has been more difficult than expected. Although in this last case it has increased the expense, in the end it must result to the benefit of the state, as the canal when completed will be constructed of the most durable materials.

The locks on the line were originally contracted to be constructed of wood and stone combined; but the increased price of labour and timber prevented the original contractors from carrying them on, and the hopes of a speedy completion if they were changed to stone laid in cement, induced me to alter seven locks on that construction. They are all now under way, and will be completed early in the spring.

The two feeder dams are completed, and the river locks connected with them—which are 90 feet long and 17 feet wide.

The culverts are principally done, and the small aqueducts are very forward—the cast-iron and cut-stone, for the big Buffalo aqueduct are all delivered, and the combined aqueduct and lock at Mexico, will be completed early in the spring. The aqueduct over the Juniata is not as forward as could have been wished, but as the foundations for the piers and abutments are all laid, and as the contractors have made all their arrangements, and are energetic men, a failure of that work cannot reasonably be expected.

The mechanical work which remains on the Juniata, is of such a description as generally to allow of its being constructed this winter, and if we have a continuance of good weather, the navigation from Lewistown down will be opened early in July next.

The progress of the Juniata canal has been as rapid as the discouraging epidemic of the autumn, and the high wages of the labourers would allow. The style and rapidity of the work, is to be attributed to the indefatigable exertions of the gentlemen connect-



ed with the engineer department; and I cannot refrain from publicly manifesting my approbation of their continued and indefatigable exertions, under so many discouraging circumstances.

Respectfully submitted,

DEWITT CLINTON,

Engineer.

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No. 8.

*Report of Dewitt Clinton, Engineer, on the upper line of the Juniata Division, from Lewistown to Smith's mills above Huntingdon.*

To the honorable board of Pennsylvania canal commissioners.

GENTLEMEN,

Appended to this report is a careful estimate of the Juniata canal between Lewistown and Huntingdon, predicated on the contract and assigned prices for the works. The cost of the canal at the estimate amounts to \$890,229, which includes the feeders, dams, aqueducts and river improvements.

To arrive at the different classes of excavation, the number of yards in the sections is proportioned to the degree of hardness, or easiness of the digging ascertained from examining the ground with an auger.

Some of the sections on the final estimate may amount to more or fall short of the estimate. But it is believed that in the aggregate that the canal will not exceed the estimated cost.

As we experienced much difficulty in procuring water cement on the Lewistown section of the canal, and as the mineral is of a poor quality. I have considered it best to suspend its use and to depend in all cases on common lime, mixed with pure silicious sand, and protected by thick coats of puddle.

The temptation which culverts with high side walls of masonry, and the ease with which unfaithful mechanics may make bad work in them without being detected, has induced me to abandon them in all cases on the upper line, and to make the arch of a sufficient caliber to discharge by springing from the wood or rock bottoms of the culverts all the water of the streams.

The expense that would attend the embankments of bridges in the borough of Huntingdon, has induced me to adopt at that place swing bridges, and as they are to be constructed on a plan different from those in use. I have annexed a description of them.

The river aqueduct at Jack's narrows has four arches of 72 feet span; the other at Shaver's ford has five arches of 75 feet span.—The trunks are supported by wooden arches similar to the western aqueducts, but having iron rods running from the ribs to the floor plate, to equalize the pressure on the chords, and introducing counter or cross braces in the sides of the trunk, and placing it at

equal distances between the ribs. The expense of the aqueducts will amount to \$63,800. At the Raystown feeder dam, a chute is planned to accommodate the river trade; it is two hundred feet long, and the fall is ten and a half feet, which is distributed in such a manner as to give unequal velocities in passing over it. The foremost part of the craft in descending will be slightly depressed in the first fifty feet, and elevated gradually on leaving it.

The plan for the work is for the aqueducts and public bridges, wood superstructures, supported on walls of dry masonry, trussel farm bridges, culverts of stone laid in common lime, waste weirs of dry and morted walls, and locks of combined dry masonry and stone, for a description of which I refer to the annexed specification.

The work is generally commenced and the contractors are making arrangements to carry on their work with vigour.

DEWITT CLINTON,  
*Engineer.*

*Engineer Department,  
Lewistown, December 1828.*

### SPECIFICATION

*For a swing bridge at Huntingdon, on the Huntingdon Division of the Juniata Canal.*

The main support of this bridge will be an abutment in the canal four feet from the centre line towards the berm side. This abutment will be commenced four feet below bottom, ten feet broad and twenty-six feet long, to be built six feet high, and to be on top eight feet broad by eighteen long; the stones to be of a large size well shaped, and laid in cement in the strongest manner. Bedded into the top is an iron plate four inches thick and six feet in diameter, with a perforation in the centre, for the pivot of the bridge. This pivot will be of wrought iron  $5\frac{1}{4}$  feet long, six inches in diameter next to the bridge and sloping to three inches at the end where it rests in an iron box let into the masonry; at the top it is joined to an iron plate which is connected with the main timbers of the bridge with screw nuts and bolts. To assist the bridge in swinging, perforated balls are to roll between the plates, and are themselves to be kept apart by two thin iron rings connecting small rods which pass through their perforation. The bridge towards either extremity is sustained upon two wheels two feet in diameter, which roll along on the pavements or planked way on the bottom, in a circle of thirty feet.

The bridge itself will be forty-four feet in length, and when in a proper position for crossing, will rest at both ends upon a step two feet deep in the tow-path and berm abutments, of which the breadth on the face, will be eight feet, that of the bridge being the same from outside to outside.

## SPECIFICATION

*For the construction of an eight foot lock, upon the Huntingdon Division of the Juniata canal.*

The locks are to be in length ninety-one feet between the gates, and in clear width fifteen feet. They will consist of a wooden frame, planked water tight, and supported by side walls of dry masonry, and will be similar, in the general plan, to those heretofore contracted for on the lower division of the Juniata line.

A pit shall be excavated to the depth of two feet and four inches below canal bottom, one hundred and thirty-four feet long and thirty-eight wide, with a slope at the sides and ends of one to one. At the upper and lower end, for twenty feet the pit must be widened six feet for the recess walls, and at the wings ten feet.—Timbers a foot square and thirty-one feet long, shall be laid cross-wise on the bottom with spaces of a foot between, and at the parts under the gate posts, they shall touch each other. These timbers are to be hewed evenly on the upper side and laid firmly to a horizontal plane, a row of sheet piling is to be driven six feet below the gate timbers at each extremity, and a third row at the foot of the lock, and the empty spaces between all the timbers filled by a careful and compact puddling.

A flooring of four inch plank truly jointed, which will cover the whole surface of timber in the pit and under the wings, will now be pinned down with one and a fourth inch pins of locust, or white oak, fourteen inches long, and on this flooring the mitre sills shall be brought to place, and bolted down water tight with three-fourths inch bolts, twenty-one inches long. On the flooring are to be laid the side walls fifteen and a half feet apart between the faces, seven feet thick at bottom and battering behind to four at the top, to be built with recesses at each four feet, to receive uprights, six inches wide and ten inches deep together with occasional recesses as exhibited on the plan. In the construction of the wall care must be taken that well shaped stone, of good size be laid in the face, and around the recesses so arranged as to break the joints continually, and the whole work shall be so bounded, that in each course there shall occur at least once in five feet, a header not less than three feet long, crossed in the next course by stretchers of similar size. The height will be fourteen feet above the foundation flooring, or one foot above top water of the upper level, where the wall will be completed by a coping three feet and a half deep. Next the gate recesses shall be left fifteen inches deep, and fifteen feet long, commencing a foot back from the upper edge of the mitre sill.—Behind the recesses, twenty three feet long at the head of the lock, and twenty-three feet at the foot, there shall be buttresses of three feet additional thickness extending to the wings and end walls. The wings are to have a thickness at the end of two feet less than the side walls, and to slope nearly to the level of the tow-path. The head of the lock will be guarded by slope walls of two feet on top, coped, but disconnected from the main walls, leaving a space between for the puddle. At the head of the lock, above the upper

gates a breast wall will be built up with the sides to within fourteen inches of bottom on the higher level, where it will meet the apron planking; being six feet thick plumb, and built with recesses for the uprights behind and before designed to be planked, and the planking behind to be continued to the outside and top of the main walls. In a recess, left in the main wall, shall be bedded a longitudinal timber twelve inches broad and ten deep, the top of which shall be half a foot below top water line, morticed below, to receive the tenons of the under uprights.

The uprights shall also be imbedded in their recesses, and be secured to the wall by a clamp in each an inch square, entering the masonry three feet, and turned six inches around a large stone of the wall. By similar clamps at every twenty feet the longitudinal timber shall also be secured.

Across the uprights along the whole face of the wall, from eighteen feet below the lower gates to eleven feet above the breast wall, and along the breast wall itself, shall be laid in contact with the wall, and spiked to the uprights, truly jointed two inch plank. From side to side of the lock over the foundation planking, shall next be laid a course of four inch truly jointed plank. The whole inside two inch planking shall be covered with a sheathing up and down of inch boards, fastened by spikes, then covered with a coating of pitch. Cap pieces ten by fifteen inches shall now be fitted by mortices to the tenons of the uprights and secured by pins through them. They shall also be painted as the engineer may require.

At the head of the lock, against the end and breast walls, shall be run a row of sheet piling, well jointed and reaching from five feet below the foundation planking to the top of the breast and main walls. Back of this a mass of clay mixed with gravel, three feet thick shall be made up to the top, in a compact and water tight puddle.

The whole breast wall, piling and puddling shall be closely covered with two courses of apron plank, extending to a timber two feet beyond the puddling. Here if required shall be a recess in the slope walls to receive the ends of plank, and form a dam in case of accident or repairs. The gates shall be constructed in the manner shown on the plan. The mitre sill to be eighteen inches by twelve, and to extend each way to the recess walls. The mitre beams will meet in a point five feet distant from the nearest edge of the sill. The hollow quoins to be eighteen inches square, to be bolted against the recess walls, and secured by two rods, also tenoned to the mitre sill below. The gates are to be painted, and to have two iron paddle gates in each gate, or eight in the lock, the castings for which, will be furnished the contractor at his expense. The lock must now be embanked, and in the bank on the up-hill side must be laid a flume, four feet by two, entering above the upper gates, and descending below the lower, and furnished with a slide gate, to draw the water through, or to cut it off between the upper and the lower levels. This being done the lock will be completed by a slope wall and pavement fifty feet below the wings; each stone of the pavement to be at least two feet in depth.

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# A statement

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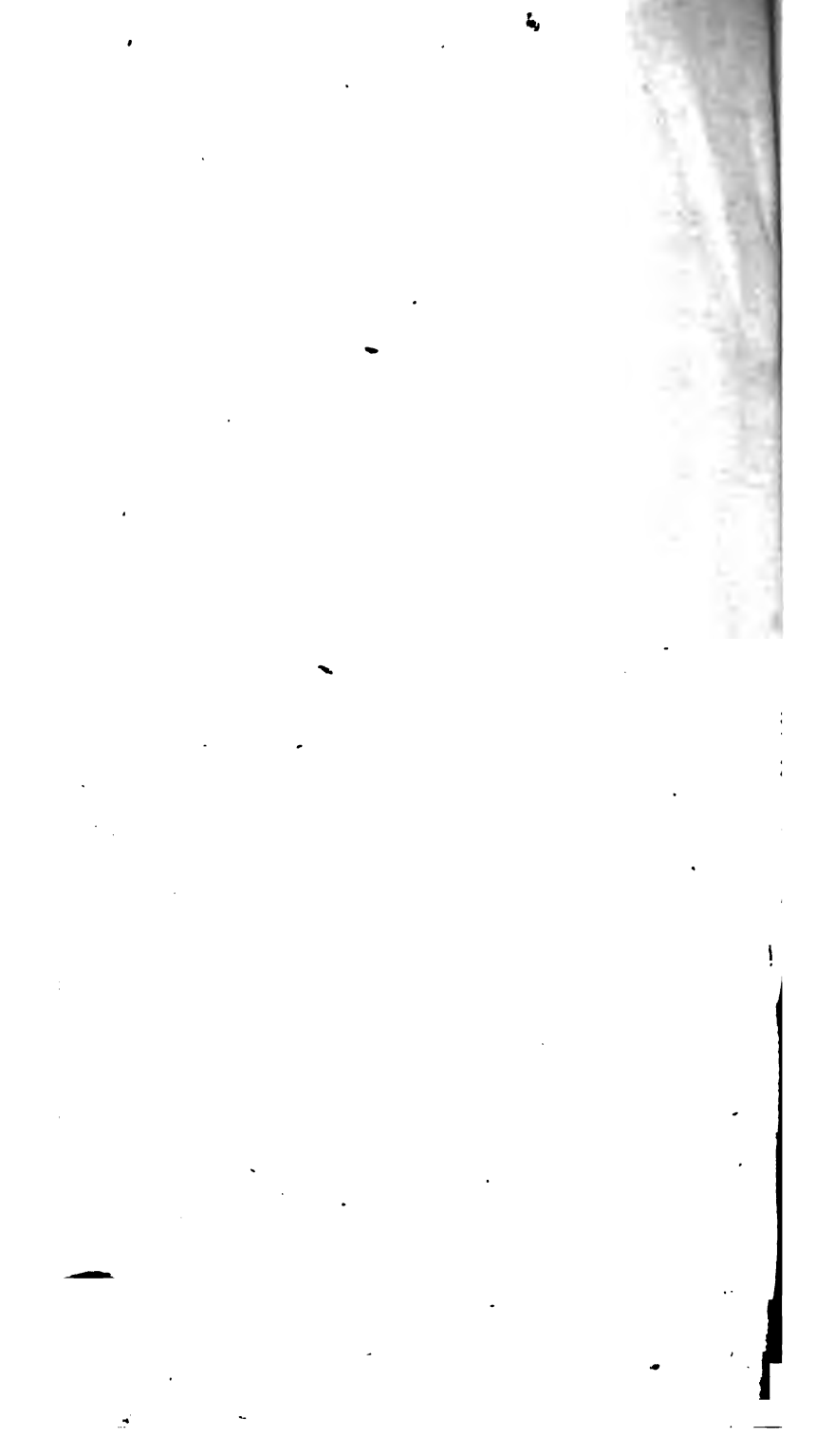
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## TABLE F.

A STATEMENT of the persons to whom, and the prices at which the stone and wood work has been assigned, on the second part of the Juniata division of the Pennsylvania Canal.

Kind of work.	Location.	Names of Contractors.	per length thereof.	Chute Gross sum.	Abutments per perch.	
					Trunk	Gross sum.
Dams.	At mouth Raystown branch, Auchwick Falls,	Dearmond, Rodermel & Co Leslie, Cook & Durno	10.50 10.50	2210	2 62½ 2 75	2 62½ 2 75
	At Jack's narrows, Shaver's ford,	Bishop and M'Coy Johnathan Leslie, A. and J. M. Moskey	stone work per perch. 400	Per foot	8 27500 31300	Gross sum. 8 27500 31300

if wood Dam.



For locks of an other lift than eight feet, it is necessary to observe that the plan will remain the same, but the upright timbers and plank will vary according to the lift. The walls will be at top, four feet as before, but at bottom will be increased or diminished by one-fifth of the difference between eight feet and the lift of the given lock.

The foundation and bottom of the pit will have a corresponding variation.

#### No. 4.

Millerstown, May 15th, 1828.

*To the Hon. David Scott, President of the Board of Pennsylvania Canal Commissioners.*

SIR,

Examinations have been made to ascertain the practicability of continuing the Juniata canal from Huntingdon to Lewistown, by the valley of the Kishacoquillis creek. The levels when commenced on this summit, which is half a mile south of Homelstown. The fall to the mouth of Mills' creek is 387.50. To the Huntingdon level established by Mr. White, 344.32; and 355 to the river at that place.

The summit would have to be tunneled if the water was taken from the river at Huntingdon, or a level would have to be continued from above Frankstown, or as there is not water on the summit it would have to be pumped from the river 367 feet high, and it would make 724 feet of additional lockage; all these plans are impracticable, as the object is not commensurate with the cost, and also the Kishacoquillis valley is composed of lime stone, and the permanency and usefulness of the canal passing through such treacherous strata would be greatly jeopardised.

I therefore considered any further surveys in that quarter useless.

Respectfully submitted.

DE WITT CLINTON, *Engineer.*

**Series 4.****No. 1.**

*To the board of canal commissioners.*

GENTLEMEN—In compliance with a requisition of the secretary of the board, dated the 11th of October, 1828, I beg leave respectfully to lay before you, the following papers, in detail.

*Upon the Eastern Division.*

1. A statement of all contracts made from the first Monday in November, 1827, to the 20th June inclusive, when I relinquished the charge of said division to Mr. Wilson.

2. A statement of the amount of damages agreed to be paid, or assessed against the state, in favor of individuals, during the same period.

3. A list of all superintendents, engineers, assistant engineers and clerks, employed on said division, during the same period, with the rate of pay and salary of each.

4. A statement of the amount of work returned, percentage retained and money paid, from the first December, 1827, to the 20th of June, 1828.

*Upon the Susquehanna Division.*

1. A statement of all contracts made during the year preceding the first Monday in November, 1828, and two papers marked No: 1. A and B.

2. A statement of the amount of damages agreed to be paid, or assessed against the state, in favor of individuals, during the same period.

3. A list of all superintendents, engineers, assistant engineers and clerks, employed during the year preceding the first Monday in November, 1828, with the wages or salary of each.

4. A statement of the work returned, percentage retained, and money paid from the 15th December, 1827, to the 3d December, 1828.

5. A statement of the amount of expenses of said division, from the 15th December, 1827, to the 1st December, 1828.

6. An estimate by the Engineer of the amount of work yet to be done, of every description on the whole division.

Referring to paper No. 1, upon the Eastern Division, it will be seen, that the list of contracts embraces principally items of work not before specified in the original contracts. Some new work not before let, and some abandoned or forfeited contracts re-let. Further explanation is unnecessary.

No 2 will shew, that the damages upon the same division amicably adjusted and paid during my agency, amount to \$1,940 80. To which must be added,

698 50  
awarded to Christian Gross, by viewers,  
including costs.



And counsel fees to Douglas and Forster, on contract to defend and carry to the extremity of the law, all suits then commenced, (June 12, 1828.)

330

1,028 50

Whole amount paid in shape of damages,

\$2,969 30

It will also be seen, that awards were made and not acquiesced in, on the part of the commonwealth, to the amount of \$3858.

No. 3 will shew that the list of engineers, &c. was somewhat changed, but on the whole was reduced on this line. And

No. 4 will shew, that the amount of work returned since my report of last December, and previous to the 20th of June, was \$67,914 96. Per centage retained \$3,623 83; and that payments were made in the same period to the amount of \$70,417 07. The reason why the amount of payments exceeds the estimates is, that several jobs were completed during that period, and the back percentage paid up.

Reference to No. 1, upon the Susquehanna division will shew,

That a considerable portion of original contracts were of date subsequent to the legal day of return of last year, a part of which work had not then been located.

No. 2, will shew that the amount of damages agreed to be paid, and which has actually been paid, by amicable arrangement, is \$5,032 55. So far I have had no official notice of any application for viewers to appraise damages; and it is matter of praise to the property holders along the line generally, that they seem willing to forbear any attempts at coercive measures for redress, even where their property is injured, and to wait the result of amicable adjustment, when the work is completed, and a fair and full opportunity afforded to judge correctly of the injury sustained. Great care has been taken to render individual inconvenience as light as possible; and in all instances, where it became necessary to remove or destroy buildings, or other essential improvements, amicable adjustments have been made, and so far as have been submitted, the board have approved, and the injured party has been paid and satisfied. A few cases still remain to be submitted, and several negotiations are pending, which I am inclined to think will terminate satisfactorily.

No. 3, will shew that the list of superintendents, engineers, &c. has undergone but little change. The two Petries have been transferred to the North Branch division. In place of the elder Petrie, who officiated as assistant engineer, no substitute has been appointed, but his duties have been performed by Mr. Hage, who assumed a double charge, and Mr. Wright, who was second to Mr. Petrie, on that portion of the division. In place of the younger Petrie, Mr. Wheelock, from the North Branch, has been substituted. Mr. Gillis, who was recommended as an excellent mechanic, was employed to superintend the construction of the Shamokin

dam, his services will cease in a few days. On two occasions persons were appointed to superintend the masonry of locks. They have both been discharged and paid, as the occasion for their appointment passed off.

No. 4, will shew, that the whole amount of work done on this division is—Grubbing, \$9,454 50; common excavation, 1,018,290 cubic yards; embankment, 664,539 cubic yards, puddling, 81,626 cubic yards; solid rock excavation, 80,002 cubic yards; slate rock, 5,200 cubic yards; hard pan, 74,825 cubic yards; vertical wall, 15,659 perches; outer slope wall, 54,357 perches; inner slope wall, 18,543 square yards, the cost of which is \$379,859 95. And locks, aqueducts, culverts, bridges, dam and other mechanical work,

157,120 81

Making an aggregate of, 536,989 76  
Upon which there has been paid, 478,836 25  
And retained as surety for the completion of the work, &c. 58,153 51

From, 536,989 76, the aggregate of work done,  
Deduct 44,140 45, amount of last year's estimates,

Leaves \$492,849 31, the amt. of estimates since last year's report.  
From 478,836 25, the whole amount of cash paid,  
Deduct 36,109 54, amount of last year's payments,

Leaves 442,726 71, the whole amount of actual payments during this year.

The amount retained as surety for completion of the work is, 58,153 51

But of that sum there has been forfeited to the commonwealth by abandonments, and failure of contractors to fulfil their contracts, 4,855 15

This leaves a clear balance of estimates yet unpaid of \$53,298 36

Of this sum \$8,233 52, are now payable, being mostly on final estimates of the engineer, and withheld solely for the want of funds. It is extremely desirable that money should be immediately provided to pay this amount, as some of the contractors are almost in a state of distress, for want of their portion of it.

No. 5 will show, that the engineering, contingent and incidental expenses for the year have amounted to \$9,956 76. And

No. 6 will show, that the amount of work remaining to be done, as estimated by the engineer, including all feeders, locks, waste-weires, lock-houses, bridge at Duncan's island, and toll-house for the same, is \$284,490 93. The estimated excess of cost, beyond the original estimate of the work, is accounted for by Mr. Guilford in part. One circumstance, that had a very forcible bearing upon the augmentation of cost, has been, what has, I believe, been felt every where, the vast amount of work thrown into the market, not

only in this, but in some of the neighboring states, the consequent great demand for hands, and the urgency with which contractors were forced into competition upon different lines, and compelled to increase the wages, to keep their work going on. Another cause of enhancing the price of labor, on the Susquehanna, was the sickness of the season. One contractor informed me that he buried twenty seven hands between May and November and another that at one time, out of forty hands, he had but six able for duty. From a combination of circumstances the fact has been, that since the Susquehanna division was originally contracted for, the price of labor has risen fifty per cent; and provisions and horse-feed, nearly in the same proportion. This rendered it impossible for a considerable number of original contractors to complete their work. Many abandoned their jobs in time to save themselves from ruin—some continued till they spent what little they had, and went to jail for debts they could not pay, and some ran off with their estimates, and left their creditors and hands to do the best they could. All these cases left the alternative either to permit the work to remain unprosecuted, or re-let it at higher prices. I adopted the latter as most consonant with public duty, and most promotive of public good.

But, with all the difficulties attendant on our progress, we have succeeded almost to the extent of our calculations. Our most formidable aqueduct over Middle creek is entirely completed; that over Mahontongo is nearly so; the stone work of the only other two, is done, and the timbers on, ready for planking. All our stone culverts under the canal are done, except a few days work at one of them, on the 33d section. Our bridges are nearly all completed and as they are all of dry work, they may be finished during the winter. The great dam at Shamokin, executed by Isaac M'Cord is completed, with the exception of some of the front planking, which is not essential to its safety. The abutments and piers of the bridge at Duncan's island are all founded, some nearly completed, and all out of the way of low water. Disappointment in the receipt of timber, according to contract, has prevented Mr. Baldwin, from progressing with the wood-work, as he calculated. Seven stone locks are built, except the coping of some and hanging of gates. The pitts for the others are mostly dug, and the materials mostly prepared and much of them on the ground, for the remainder. These would have been in a much more forward state, had not a strong portion of that formidable company of Byrnes & Provest, to whom they were let, been employed on the Eastern division. Twenty-four sections of the canal have been returned finished, and as many more are within a trifle of being done. All the heavy sections are in a good state of progress; all the wall being founded, and out of reach of common floods, and much of it finished. Knowing now what has been done, and what is to be done, I feel the utmost confidence, that nothing but want of funds will prevent the completion of the whole line, from Clark's Ferry to Northumberland, by the first of July next.

The Dam at Shamokin will unquestionably afford, at all times, a tremendous surplusage of water, beyond all demands for navigable purposes. It might therefore be well to inform the legislature of the fact, that they may, if in their judgment, it should be proper, make provision for disposing of permanent water rights.

The descending navigation, through this dam, is perfectly safe. Ascending navigation, through it, will be impracticable; but should it be thought advisable, a wooden lock may be constructed, for between 3 and 4,000 dollars, to admit boats from the river into the canal, below the dam, whence they may proceed to the pool above it.

I cannot close this communication without referring once more to money concerns. It appears that the whole amount of funds applicable to canal purposes, is exhausted, partly in anticipation. And I have now, laying in the office, estimates for work, to the amount of \$ 8,233 53, of which \$ 5,585 30 is on final estimates, and ought to be paid immediately. And, on the 15th of this month, the regular estimate day, an amount of not less than 30,000 dollars will be required to comply with the conditions of contracts. After which, I calculate, that the winter estimates will amount to not less than \$ 30,000 a month.

I state these facts, that the board may be fully apprized of my immediate and probable future wants, to keep the work in a successful state of progress.

All which is respectfully submitted,

C. MOWRY,

*Acting canal commissioner*

*Pennsylvania canal office,  
Harrisburg, December 5th 1828.*

*Report of William Wilson, Superintendent on the eastern division  
Pennsylvania canal.*

*To the President and Board of Pennsylvania canal commissioners.*

GENTLEMEN,

I beg leave to present to you my report upon the several works confided to my care from the 21st June 1828, being the time I took charge of the eastern division of Pennsylvania canal.

The first paper to which I beg leave to refer, are the lists of contracts on said division marked A. 1. and A. 2.—A. 1. contains all the contracts entered into from the 21st June to 3d November, 1828, as required by the the "Act of 16th April, 1827. And A. 2. embraces all the contracts entered into for the letting on the first of November 1828, from the Swatara to Columbia, as those lists contain all the information I can give on the subject, I leave them without further remark.

The next I refer you to, is the list of engineers and persons employed on said division from the 21st June, to 3d November 1828, marked B.

The next in order is a statement of damages marked C. With reference to this I will observe that at the time which this report was required to be made, I had only been able to enter into two contracts as will appear by said list. The difference of opinion as to the value of the lands occupied by the canal, and the amount of damages otherwise sustained, have rendered extremely difficult to enter into any amicable arrangements; and the large amount of damages awarded by juries in most cases when that mode of decision was resorted to, have had a tendency to lessen the disposition for amicable adjustment. Two cases of damages have been acted upon by the juries, one in which the heirs of William Maclay were parties and the other Archibald M'Allister. The court have likewise confirmed the award of the jury in the case of George Fisher, for his farm near to Middletown.

I next beg leave to refer you to a statement of the progress of the work on said division from the 21st June to 30th November, 1828, marked D. by which it will appear that the whole amount of work estimated as done during the above mentioned period, amounts to

\$171,531 53½

Payments made on the above, amount

to

\$152,575 22

And per centage retained until completion

18,956 31½

—————\$171,531 53½

The whole work upon this division is not yet finished, but it is confidently believed will be in the course of the winter, so as to be ready for the opening of the spring navigation. The whole line from Middletown to A. M'Allisters, is finished and ready to let in the water. The only work remaining to be done, is on sections No. 1, 2, 8, and 9. The two first were only contracted for in

the fall of 1827, the guard lock No. 1, section No. 5, and the filling in of the abutments of the two aqueducts at Clark's and Stoney creek, all of which are in a state of forwardness, and without some unavoidable occurrence will soon be completed.

The necessary repairs along the line, consisting of weirs, stopping leaks, sheet piling, planking and puddling at the head of the locks, slope walls, paving and altering the towing path at the borough of Harrisburg, as directed by the board at their last meeting, have been principally completed, although there is little doubt but the water when introduced will point out defects which the most careful scrutiny would not detect and will require additional attention.

All which I beg leave to submit, and am very

Respectfully yours, &c.

WM. WILSON, *Sup't.*

Pennsylvania Canal Office,  
Harrisburg, 6th December, 1828.

## No. 2.

TO WILLIAM WILSON, *Superintendent*  
*of the Eastern Division, Pennsylvania Canal.*

SIR—

In compliance with instructions received from Joseph M<sup>r</sup>. Ilvaine, Esq. I beg leave to submit the following preliminary remarks, relative to the line from the Swatara to the Juniata, with the several estimates directed to be furnished.

The new contracts entered into, embracing the guard lock, Clark's and Stoney creek aqueducts with Messrs. Byrne and Co. have been satisfactorily prosecuted and conducted. Although the price now given is much greater than in the original contract, I am satisfied, that had not such measures been entered into, the work would yet be in an extremely backward state.

The old contracts, including the channel, dam and section 2, under Messrs. Green and Moore, and sections 1 and 3, with O. H. Dibble, have also been satisfactorily prosecuted. The dam and section 3 have been completed, and all that remain unfinished comprise sections 1, 2, 8 and 9, with the exception of some items of embankment and excavation at the ends of locks and aqueducts, and part of the coping of lock on section 4, which are of but minor importance.

The alteration of the towing path at Harrisburg is completed—the outlet locks at Middletown are finished, and so soon as the grouting in the bottom of the upper lock will warrant letting in the water, (in becoming sufficiently hard, which will be in week or ten days) the means of communication with the Swatara, will be complete. An energy has been manifested in carrying on the works

highly satisfactory, and the exertions used in every way, to complete the line, are creditable to the contractors—and I can now congratulate you on the certainty with which we may rely on completing this division early in the season of 1829.

SAMUEL H. KNEASS,  
Engineer.

Pennsylvania Canal Office,  
Harrisburg, 3d Dec. 1828.

*Estimate of the cost of completing the division, including finished work, upon which final payment has not been made.*

*Section No. 1.*

1500 perches of wall at 75 cents	\$ 900
6900 cubic yards of embankment at 30 cents	2070
New road on the above section.	
3000 perches of wall at \$ 1 50	4500
8600 cubic yards of embankment at 30 cents	2580
	<hr/> \$ 10,050

*Section No. 2.*

2300 perches of wall at \$ 1	2300
10,176 cubic yards of embankment at 33 cents	3358
New road on the above section.	
6000 perches of wall at \$ 1 50	9000
12,500 cubic yards of embankment at 33 cents	4125
	<hr/> \$ 18,783
Guard lock	10,000
Section No. 4	900
Sections 8 and 9	7,000
Clarke's creek aqueduct.	4,500
Stoney creek do	4,000
Sections 14 and 15	10,000
	<hr/>
Lock on section 4	4,000
	<hr/>
Total	\$ 69,233

*Estimate of the cost of the line from Middletown to Columbia, at contract prices.*

*Section No. 3.*

12,000 cubic yards of excavation at 9½ cents	\$ 1140
3000 do Rock do 43 do	1290
Grubbing	100—\$ 2530

*Section No. 4.*

13,000 cubic yards of excavation at 9 cents	\$ 1224
2500 do Rock do 54 do	1350
Grubbing	100
	<hr/> \$ 2672

*Section No 5.*

10,771 perches of wall at 45 cents		\$ 4850
6000 cubic yards of rock excavation at 50		3000
4771 perches to provide for wall	50	2385
20,000 cubic yards of embankment	18	3000
14,000 do earth excavation	10	1400

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\$15,231*Section No 6.*

7608 perches of wall at 50 cents		\$ 3803
7608 cubic yards rock excavation	50	3803
16,000 do embankment	20	3200
7500 do earth excavation	12	900

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\$11,706*Section No. 7.*

4608 perches of wall at 48 cents		\$ 2211
4608 cubic yards rock excavation	50	2304
9000 do embankment	21	1890
4800 do earth excavation	11	528

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\$ 6933*Section No. 8.*

10,771 perches of wall at 47 cents		\$ 5062
4000 cubic yards of rock excavation at 43		1720
6771 perches to provide for wall	37½	2539
18,000 cubic yards of embankment	13	2430
11,000 do earth excavation	9	990

---

\$12,741*Section No. 9.*

10,000 perches of wall at 62½ cents		\$ 6312
3000 cubic yards of rock excavation	62	1875
7100 perches to provide for wall	40	2850
15,000 cubic yards of embankment	25	3750
16,000 do earth excavation	12	2000
Grubbing		150

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\$16,927*Section No. 10.*

7000 cubic yards rock excavation at 62 cents		\$ 4375
3800 do embankment	25	950
10,500 do earth excavation	13	1339
Grubbing		150

---

6814*Section No. 11.*

8000 cubic yards earth excavation at 11		\$ 880
6000 do rock do	50	3000
2500 do embankment	15	375
Grubbing		150

---

4405



# CANAL REPORT.

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## Section No. 12.

15,000 cubic yards earth excavation at 10 cents \$1500  
Grubbing 100

1600

## Section No. 13.

15,500 cubic yards earth excavation at 10 \$ 1500  
Grubbing 30

1530

## Section No. 14.

11,700 cubic yards earth excavation at 12½ \$1462

## Section No. 15.

1300 perches of wall at 37½ cents \$ 487  
1800 cubic rock excavation 50 900  
15,000 do earth do 10 1500  
6000 do embankment 14 840

3727

## Section No. 16.

10,137 perches of wall at 50 \$ 5068  
10,137 cubic yards rock excavation 45 4561  
19,000 do embankment 15 2859  
4000 do earth excavation 12½ 500

12,988

## Section No. 17.

7764 perches of wall at 55 cents \$4270  
3700 cubic yards rock excavation 50 1850  
4964 perches to provide for wall 45 1828  
10,000 cubic yards earth excavation 10 1000  
12,000 do embankment 13 1560

10,500

## Section No. 18.

12,000 perches of wall at 62½ cents \$ 7500  
3000 cubic yards rock excavation at 62½ 1875  
9000 perches to provide for wall 40 3600  
25,000 cubic yards of embankment 20 5000

17,975

## Section No. 35.

25,000 perches of wall at 50 \$ 12,500  
9000 cubic yards of rock excavation 50 4500  
13,000 perches to provide for wall 50 6500  
50,000 cubic yards of embankment 20 10,000  
10,000 do earth excavation 10 1000

34,500

## Section No. 36.

28,000 perches of wall at 48 \$ 13,440  
3000 cubic yards of rock excavation 55 3650  
22,000 perches providing for wall 50 11,000  
3000 cubic yards earth excavation 10 300  
57,000 do embankment 25 14,250

42,690

Conewago aqueduct		3,687
Conoy do		2,990
Chicquasalunga do		2,150
Culvert No. 1		300
do No. 2		450
Bridge No. 1		500
do 2		475
Lock No. 1		2490
do 2, 3, 4, 5, 6, 7, 8,	3,100	21,7000
Total		\$240,885

No estimate has been made on either of the above sections, for any kind of earth excavation but loam, as it is impossible even to make an approximation to the quantities, under the same circumstances this estimate has been made. If such material should be met with, the cost of the line will be somewhat increased.

I would respectfully suggest, sir, that the building of stone locks be recommended in your report to the commissioners. Offers have been made by responsible contractors, to build the whole of the locks of stone, with wooden bottoms at an average cost of 5,500 dollars each; which, in the aggregate, will exceed the cost of wooden locks as contracted for, but 17,800 dollars.

Yours, very respectfully,

SAMUEL H. KNEASS,

Engineer.

Pennsylvania Canal Office,  
Harrisburg, 3d Dec. 1828.

## No. 8.

### EASTERN DIVISION, NO. 2.

Statement of the amount of damages agreed to be paid to individuals, or assessed in favor of individuals, against the state on the Eastern Division of the Pennsylvania canal, from the 1st Monday in November, 1827, until the 20th day of June, 1828, when I relinquished the charge of said division as acting commissioner.

1827.

Dec. 27. To Thomas Elder, attorney for Christian Gross, on section 10, inclusive of cost—(reported as assessed in statement of November 5th, 1827) 698 50

1828.

March 6. To W. Grimshaw for clearing stone spalls off his meadow lot, used by the builders of lock No. 6, and for re-setting and repairing a fence. 5 00

8. To W. Holbrook, justice of the peace, for taking sundry depositions in the case of George Fisher for damages 2 71



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day in  
relinqu  
1827  
Dec. 2

1828  
March





can's Island to the proof, and payments made to Con-  
lay of November,

Perches of wall.	Grubbing.	of ion.	Total sum re- tained on each section.	Total payments made on each section-	No of sections.
18800					





Mowry, acting commissioner on the Eastern division  
clusive.

board for laborers, and tools and bill for plank for pil-  
ing, on proven account,

\$ 3,

\$188 for work done by direction of the Engineer, pre-  
vious to March 29th, 1828, and at the rate of \$1 a day  
for each hand, 1 50 a day for each horse, cart and driv-  
er, \$1 for plank used, 9 71½ for night work, and \$1  
for clearing spalls off Ritchey's lot,

\$8 a rod,

\$1 a superficial yard for paving water course at out-let,

\$2 a perch for 2 culverts, under embankments,

15 cents per cubic yard for completing banks,

From Feb. 25th, to March 19th, 1828.

\$2 50 a d. for each wagon, horse & driver,

1 75 do for each horse and cart,

1 50 do for each driller and hand working in the water,  
getting out stone,

\$1 a day for each common laborer, including boarding of  
hands, use of tools, and other expenses, except powder  
and rope, for which \$4 were allowed, for superintend-  
ing \$30,

From March 17th, to April 25d, 1828,

\$1 a day for each laborer,

1 50 do horse, cart and driver,

20 for superintending,

\$42 for oiling & painting the gates, & for sheet-piling,

\$500 each, of frame with cellars complete,

\$1 a day, boarding and tools, included,

\$500 each, of frame with cellars complete,

\$34,

1 a perch for repairing abutment-wall,

5 for replacing timbers,

1 75 a perch

75 a foot for the sand stone coping,

41 88

70 a foot lineal for the railing,

10 a superficial yard for painting do

9 a pound for the lead,

\$5 for lead and other materials,

1 25 a day for his own services,

\$1 12½ do for each laborer, and bill for pumps, sharp;  
ening drills and powder on proven account.

C. MOWRY. Acting Canal Commissioner.



3d day of November, 1828, (being the first  
the Pennsylvania Canal.

ubic yard.

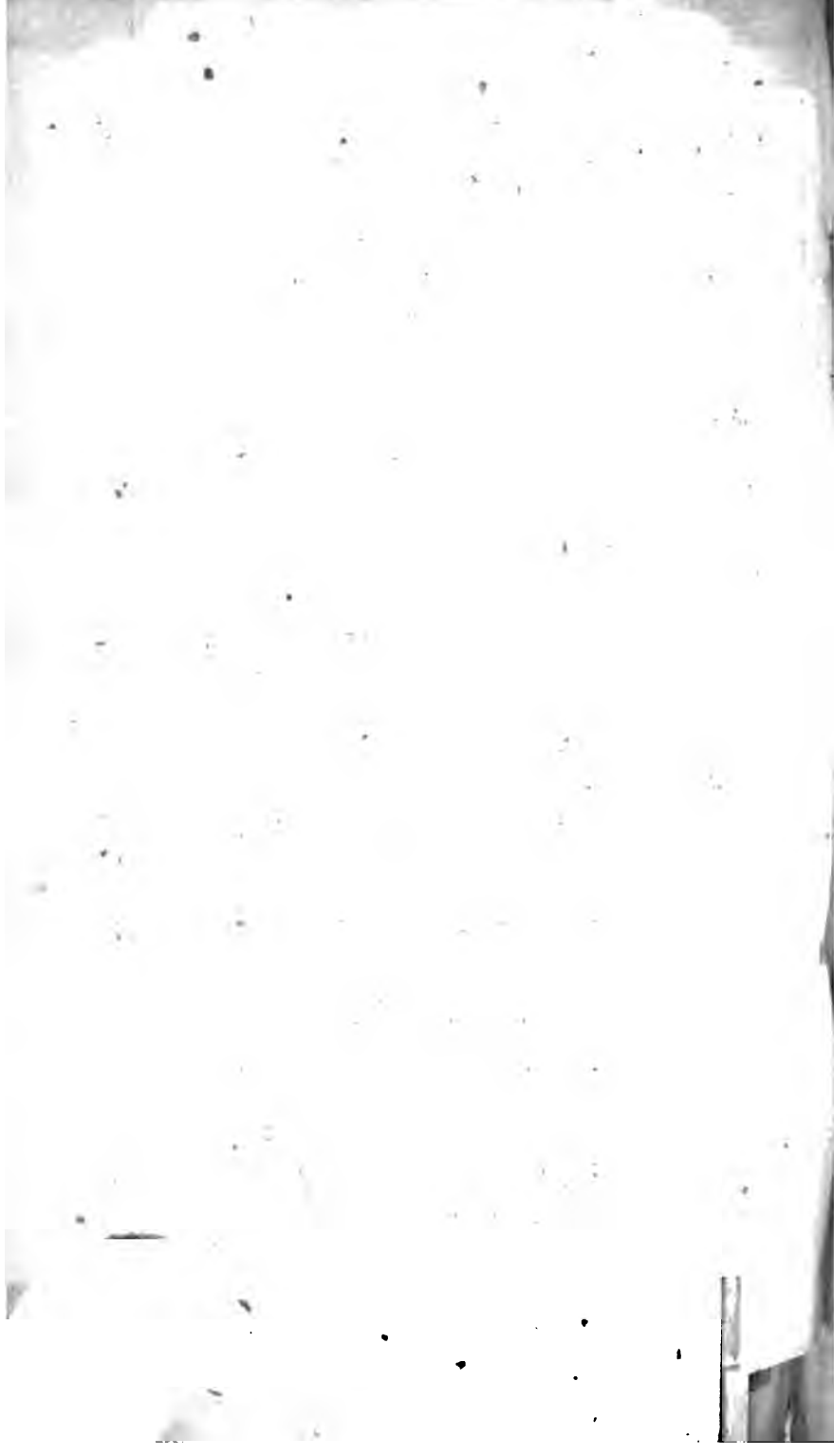
Hard-pan.	Embankment	Miscellaneous.
	15	And on final estimate to receive back per-centage ret'd of R. Williams.

Flat Rock	Solid roc	Vertical wall	Slope wall outside canal.	Providing stone.	Slope wall, inner side of canal.
24	43	45	48	10	16
25	54	50	40	40	12½
20	50	45	50	50	25
25	50	50	50	60	15
25	50	48	50	60	25
27	43	47	48	37½	13
35	62½	62½	75	E	23
35	62½	62½	75	E	33
40	50	79	35	50	25
30	40	E	E	E	12½
30	40	E	E	E	12½
25	55	60	55	E	28
25	50	37½	37½	E	30
E	45	50	50	50	E
45	50	55	48	E	23
25	62½	62½	62½	E	E
25	55	48	50	50	18
24	50	50	60	50	18

No. 5, \$2 49 per perch of 25 cubic feet; and for No. 2,  
of 25 cubic feet.

\$ 11 per foot lineal; and for stone work per perch of  
ars.

\$12 per do	and for do	do	\$ 2 56
\$12 50 per do	and for do	do	\$ 2 35
\$125 per do	and for do	do	\$ 1 80
\$115 per do	and for do	do	\$ 1 80



2076

974  
1196  
85

787

706.60

855  
1254  
3874900  
30  
528  
1233  
3223

15659.71 54357.80 1

6843

15659.71 47514.80 1

4  
8  
6  
33  
17  
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4  
30  
36  
31  
18  
1119 825 of the grubbing on the out-side  
of the line.10 820 of the grubbing by removing  
line.43 Percentage paid to successor,  
13 As per contract, having underta-  
53 ken the work at the same prices  
74 as Coner.81 Percentage reported Dec. 15th,  
1827, 86775 60  
93 Unpaid amounts, 1255 31

25

8030 91

54

5 71

Acting Canal Commissioner.

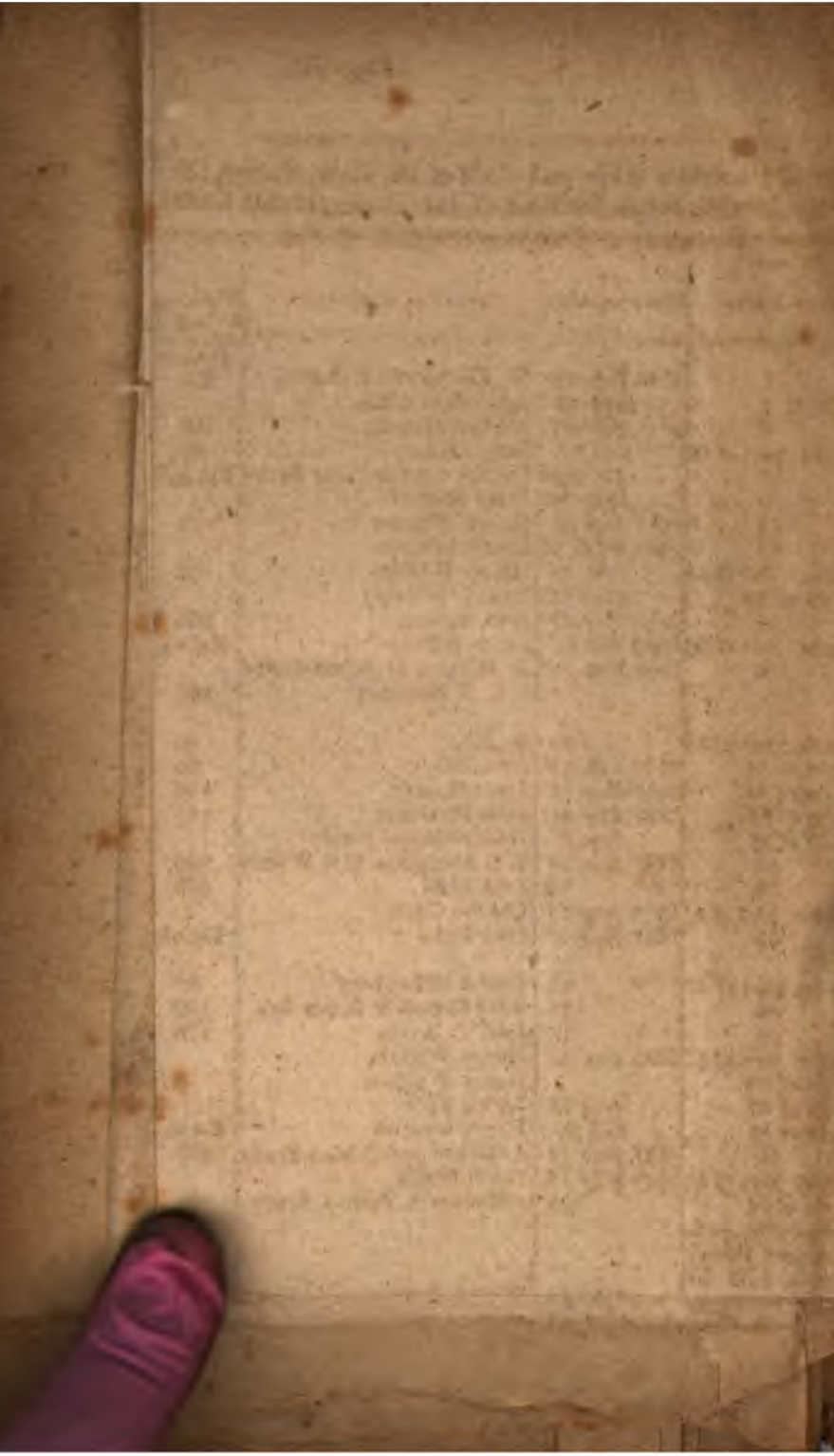




No.	Name	Age
1	John Smith	25
2	James Brown	30
3	Robert Jones	28
4	William Davis	35
5	Thomas Wilson	22
6	Charles Moore	32
7	George Taylor	27
8	Edward White	38
9	Richard Black	24
10	Henry Green	33
11	Samuel King	29
12	Benjamin Lee	31
13	Joseph Hall	26
14	Matthew Clark	34
15	David Evans	23
16	John Scott	36
17	Robert Adams	21
18	William Baker	37
19	Thomas Miller	25
20	Charles Wright	39
21	George Hill	27
22	Edward Young	30
23	Richard King	24
24	Henry Green	33
25	Samuel King	29
26	Benjamin Lee	31
27	Joseph Hall	26
28	Matthew Clark	34
29	David Evans	23
30	John Scott	36
31	Robert Adams	21
32	William Baker	37
33	Thomas Miller	25
34	Charles Wright	39
35	George Hill	27
36	Edward Young	30
37	Richard King	24
38	Henry Green	33
39	Samuel King	29
40	Benjamin Lee	31
41	Joseph Hall	26
42	Matthew Clark	34
43	David Evans	23
44	John Scott	36
45	Robert Adams	21
46	William Baker	37
47	Thomas Miller	25
48	Charles Wright	39
49	George Hill	27
50	Edward Young	30







Road culverts requisite work to be estimated by the eng.  
Wooden do

In suffic'nt

oak posts per rod:  
cents

4, do

7 and do

Through la

Huling & do

16, do

18 and do

20, 21, 22, do

27, do

30 and do

35, 36, 37, do

34, 38, 41 do

39 and do

41, cents

44, 4 cents

47 and do

Through li

(lately) do

53 to cents

56, 4 cents

58, 5 do

61 and do

63 and do

68 to cents

70 and



# CANAL REPORT.

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31.	To George Mish, in full for damages to his land on section 31	60 00
	To Peter Pancake, do. do. do. section 30,	55 00
	To John Shoch, do. do. do. do. 31,	60 00
April 23	To Alex. Chambers, do do. and destruction of a house, on section 15,	1,000 00
June 2.	To Henry Lackey, for stoppage of his saw-mill, whilst feeding the canal from Fishing creek to Middletown in April last	64 10
4.	To Widow Earley, in full for damages, to her property in High Spire	125 00
6.	To J. Mahon, in full for do. in Swatara township	120 00
	To Espy & Co. in full for do. to a distillery at Hunter's falls	300 00
9.	To Peter Keller, in full for damages, to his property in Swatara township	25 00
10.	To Elizabeth Murray, for damages, to her out lot near Harrisburg	20 00
11.	Thomas Elder, for damages, to property near Harrisburg	90 00
19.	To J. Davies, Esq. for costs in the sundry damage suits	13 59
		<hr/>
		2,639 30
	To Samuel Douglas and John M. Foster, Esq's. as counsel fees in damage cases, at different times	330 00
		<hr/>
		2,969 30

The foregoing items have been paid.

The following are cases of damages assessed by viewers under process of law and were left by me in a state of litigation.

1828.

June 2.	George Fisher, Esq. damages to farm, in Susquehanna township	1,500 00
5.	William Paffenberger, do. in Middle Paxton do.	350 00
	Adam Fertic, do. in do. do.	500 00
6.	James Patterson, do. in do. do.	600 00
14.	Heirs of Felix Landis, deceased, damages to three lots or pieces of land in Swatara township,	
	No. 1.	678 00
	2.	16 10
	3.	154 00
		<hr/>
		908 00
		<hr/>
		3,858 00
		<hr/>
		6,827 30

C. MOWRY, Acting Canal Commissioner.

Pennsylvania Canal Office,

Harrisburg, Dec. 5, 1828.

## No. 9.

## C.

Statement of the amount of damages agreed to be paid to individuals, or assessed in favor of individuals, against the state, on the Eastern division of the Pennsylvania canal, from the 21st of June to 3d November, 1828, (being the first Monday) by William Wilson, superintendent of said division.

August 21st, 1828. Daniel Books, for damages done three lots of land in Highspire, Dauphin county, on section No. 41, \$70.

October 14. William Grimshaw, by his attorney, George W. Harris, for damage done, and land taken by the canal, two acres and sixty-six perches, in Swatara township, on section No. 32, \$193.

*Assessed in favor of:*

August 18. William Maclay's heirs, on section No. 28, \$1,450.

October 28. Archibald McAllister, in Susquehanna township, on section No. 16, 7,337.

## No. 10.

## Eastern Division, No. 3.

List of the names of all superintendents, engineers, assistant engineers and clerks, employed on the eastern division of the Pennsylvania canal, with the amount of wages or salary of each, from the first Monday in November, 1827, until June 6th, 1828.

Charles Mowry, acting commissioner \$ 4 per day until June 20th 1828, inclusive, when he relinquished the charge of the eastern division; not paid per diem in that division, while engaged on the Susquehanna, nor during session of the board.

F. W. Rawle, engineer \$ 1,460 per annum, until May 3d, 1828, when transferred to the west branch division.

Samuel H. Kneass, assistant engineer \$ 60 per month until April 10th, 1828.

Samuel H. Kneass, principal assistant engineer \$ 3½ per day until May 3d, 1828.

Samuel H. Kneass, engineer \$ 1,460 per annum, from May 4th 1828.

George Merrick, assistant engineer, \$ 60 per month until May 3d, 1828.

George Merrick, principal assistant engineer, \$ 3 50 per day from May 4th, 1828.

F. W. Leopold, clerk of the works \$ 2 per day until December 24th, 1827.

F. W. Leopold, clerk of the works \$ 2 50 per day from December 25th, 1827, until June 20th, 1828; not paid on the eastern division, while engaged on the Susquehanna division.

William Groves, superintendent of masonry, \$ 3 per day until June 5th, 1828.

C. MOWRY,

*Acting canal commissioner.*

*Pennsylvania canal office,  
Harrisburg, December 5th, 1828.*

List of names of superintendants, engineers, assistant engineers, clerks and persons employed on the eastern division of the Pennsylvania canal, with the salary or compensation of each, from 21st of June to the 3d of November, 1828, (being the 1st Monday.)

William Wilson; superintendant, 18th June, 1828, \$ 3 per day.

Samuel H. Kneass, engineer \$ 1,460 a year.

George T. Merrick, assistant engineer, \$ 3 50 per day.

Joseph J. Wallis, clerk, 18th June, \$ 2 50 per day

George M. Lauman, target bearer 9th June \$ 1 50 per day.

Mr. Wilson left home on the 18th June, 1828, to take charge of the line, but did not get charge of the papers, &c. until the 24th June.

Joseph J. Wallis, same as above.

### No. 11.

*Liverpool, canal office,*

*December 1st, 1827.*

*To the board of Canal Commissioners of Pennsylvania,*

GENTLEMEN,

I have the honor to transmit the following estimate of the cost of completing the Susquehanna division of the Pennsylvania canal.

Total cost of excavation,	\$ 20,201 54
Ditto embankment,	28,919 70
Ditto ditto to be procured from a distance,	17,031 68
Ditto puddling,	8,481 78
Ditto solid rock,	13,654 96
Ditto slate rock,	233 62
Ditto hardpan,	5,712 98
Ditto vertical wall,	4,762 35
Ditto outer slope wall,	21,056 85
Ditto sundries not included in contracts,	787 00
Ditto inner slope wall,	2,396 76
Ditto grubbing and clearing,	266 50
Ditto making roads,	15,791 90
Ditto aqueducts	2,802 25
Ditto culverts,	729 25
Ditto locks,	36,826 95
Ditto bridges, exclusive of embankments,	3,950 00
Ditto waste weirs,	4,509 00
Ditto fencing the canal,	12,081 88
Ditto guard gates,	1,464 00
Ditto head gates,	2,200 00
Ditto feeder from Berry's falls to lock No. 4,	9,994 00
Ditto feeder and dam at section No. 26,	1,808 00
Ditto dam on Shamokin ripples,	1,193 50

Total cost of lock houses and toll house,	5,038 00
Ditto bridge over Susquehanna river,	45,045 35
Ditto outlet of canal including bailing and excavation of lock pit and basin.	4,304 32
Ditto turnpiking bridge embankment at Huling's ferry,	192 00
Ditto wooden lock at Penns creek,	2,200 00
Ditto culvert embankment,	855 00

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\$ 284,440 93

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As the expense of completing this division of the canal will be more than was estimated on the 23d November, 1827, it will be proper to remark, that at that time, the canal was only located "from the head of Duncan's island to the west branch of the Susquehanna river," since which it has been extended two and a quarter miles farther, to Clark's ferry, embracing 21½ feet of lockage and the tow path bridge, which makes an additional expense of

	\$ 126,078 32
Add for toll and lock houses,	7,300 00
Ditto for side cut and lock at Penn's creek,	3,200 00

Amount not before estimated, 186,578 92

Besides this additional sum, the cost of completing the canal has been considerably increased by new contracts for a great portion of the work; by more rock and hardpan having been found, than was estimated; by some alterations which were thought necessary, such as increasing the length of the aqueduct over Middle creek; by substituting two aqueducts in the place of culverts and by constructing a feeder on section No. 26.

All which is respectfully submitted,  
SIMEON GUILFORD,  
Engineer.

### No. 14.

*Statement of damages agreed to be paid, or assessed within the year ending November 3, 1828, on the Susquehanna Division.*

Statement of the amount of damages agreed to be paid to individuals, or assessed in favor of individuals, against the state on the Susquehanna Division of the Pennsylvania canal, during the year preceding the first Monday in November, 1828.

Date of agreement,	DOLLS. CTS.	When paid.
1827		

Nov. 5. To H. W. Snyder, for injury to his mills and lot on the Isle of Que, inclusive of all damages to his property "in any shape whatever,"	1827	Nov. 5.
	1,500 00	



# CANAL REPORT.

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Date of Agreement. 1827.	Dollrs. cts. When paid.
Nov. 15. Peter Ritner, for the removal of buildings on section No. 20, and of fences on his farm, interfering with the canal, inclusive of damages to any of his property,	1828 200 00 Apl. 15.
Nov. 16. Lewis Dewart, for injury to a piece of buck wheat,	1827 18 00 Nov. 16.
Nov. 16. B. L. M'Carty, for removing a stable on section 41,	1827 15 00 Nov. 16.
Dec. 11. L. B. Stoughton, for the removal and re-erection of Henry Seachrist's house on section 39,	1828 475 00 May 19.
Jan. 18. Philip Arnold, for the removal of two stables, pig-pen, corn-crib and bake-oven, on section 43,	1828 25 00 Apl. 15.
Jan. 18. William Sholley, for the removal of his smith shop and bake oven on section 49,	1828 20 00 Nov. 15.
Jan. 18. George Kerstetter, for the removal of a two story house and smith shop, and digging of a new well in place of the one destroyed by the canal on section 50,	1828 250 00 Apl. 18
Jan. 25. Benjamin L. M'Carty, for the removal of a stable on section 44,	55 00 Apl. 18.
Feb. 21. Martha Musselman, for the destruction of a crop of buck wheat and a patch of potatoes, and other incumbrances in 1827, on section 26,	1828 18 00 Feb. 21.
Feb. 21. Jonathan Rafter, for a lot of ground taken up by the canal in Perry county, (on contract entered into the 20th September, 1827,)	1828 175 00 Mar. 15.
Mar. 28. Barbara Dubbs, for one acre of ground in fee simple, buildings, fences, &c. removed at her expense,	1828 350 00 Apl. 18.
Mar. 28. Allen & Co. for removal of buildings on section 27,	1828 50 00 Apl. 15.
Apl. 17. Abraham Blaser, for removal of spring house out of track of canal on section 47,	325 00
For placing bored logs to carry the spring-water under the canal on section 47,	325 00
For removing fence on section 48,	315 00
	1828 75 00 Aug. 1

Date of Agreement. 1828	}	Dolla. cts.	When paid
Apl. 17.	Samuel Witmer, for the destruction of his still house on section 53, one tenement and a stable on section 54,	200 00	1828 Sep. 15.
Apl. 24			1828 July 15.
May 15.	J. Cake, for the removal of buildings on section 44,	35 00	1828 May 15.
June 14.			1828 June 12.
July 15.	George Tharp, for the removal of a large hog-stye belonging to his distillery on section 25, inclusive of part of a lot taken up by the canal and all damages to his property,	225 00	1828 Sep. 15.
July 19.			1828 Nov. 15.
July 23.	Henry Bowman, in full for damages to all his property on section 5,	175 00	1828 Sep. 15.
July 23.			1828 Aug. 15.
July 25.	Benjamin L. McCarty, for the building of an oven, in place of one destroyed by the construction of the canal on section 41,	10 00	1828 Aug. 15.
Aug. 14.			1828 Oct. 16.
Aug. 15.	Abraham Miller, for the removal of fences on section 4,	24 03	1828 Aug. 15.
Aug. 21.			1828 Sep. 15.
Aug. 21.	Eli Russel, for the removal of two houses on section 5,	150 00	1828 June 13.
Sep. 15.			1828 Sep. 15.
Sep. 15	Rebecca H. Duncan, for the removal of fences on section 5,	20 40	1828 Sep. 17.
Oct. 8.			1828 Sep. 15

Oct. 28 L. Hodge, for the removal and re-  
erection of a barn on section 50,<sup>1</sup>

1828  
55 00 Unpaid.

85,032 55

In addition to the foregoing, a contract has been entered into on the 30th October, 1828, with James Dill, for the construction of a well, for the use of Mr. Sherman, on section No. 31, in place of the one destroyed for him by the canal, at the rate of two dollars a foot in depth for that part which may be denominated earth excavation, and for that part which may be denominated rock, four dollars and fifty cents a foot in depth, to be paid on monthly estimates of the engineer, except 20 per cent. retainable as security until completed.

C. MOWRY,

*Acting Canal Commissioner.*

*Pennsylvania Canal Office,  
Liverpool, November 8, 1828.*

## No. 15.

### SUSQUEHANNA DIVISION.—No. 3.

#### *List of Engineers, Superintendents, &c. on the Susquehanna Division.*

List of the names of all superintendents, engineers, assistant engineers and clerks, employed on the Susquehanna division of the Pennsylvania canal, with the amount of wages or salary of each, during the year preceding the first Monday in November, 1828: Charles Mowry, acting commissioner, three dollars per day: not paid on the Susquehanna division, while engaged on the eastern nor during the session of the board.

Simeon Guilford, engineer two thousand dollars per annum.

Hother Hage, assistant engineer, sixty dollars a month, until May 31st, 1828.

Hother Hage, principal assistant engineer, four dollars a day, from June 1st, 1828.

John A. Byers, assistant engineer, sixty dollars a month, until May 31st, 1828.

John A. Byers, principal assistant engineer, two dollars and seventy-five cents a day, from June 1st, 1828.

F. H. Petrie, assistant engineer, sixty dollars a month, until June 18th, 1828, when transferred to the North Branch division.

F. W. Leopold, clerk of the works, two dollars a day, until Dec. 24th, 1827, from December 25th, 1827.—Not paid on the Susquehanna division, while engaged on the eastern.

Samuel Gillis, superintendent of the mechanical work, two dollars and fifty cents a day, from July 18th, 1828.

Martin Keperling, superintendent of masonry at lock 11, one dollar and fifty cents a day, from August 22, until September 15, 1828.

Stephen Stafford, superintendent at locks, 7 and 8, two dollars a day, from October 6, 1828.

John H. Hopkins, target man, one dollar and fifty cents a day, until May 31, 1828.

John H. Hopkins, sub-assistant engineer, two dollars a day, from June 1, 1828.

Franklin Wright, target man, one dollar and fifty cents a day, until May 31, 1828.

Franklin Wright, sub-assistant engineer, two dollars a day, from June 1, 1828.

James Warford, target man, one dollar and fifty cents a day, until May 31, 1828.

James Warford, sub-assistant engineer, two dollars a day, from June 1, 1828.

E. Wheelock, target man, one dollar and fifty cents a day, from June 25, 1828.

Charles O. Sanford, draftsman, one dollar a day, for thirty-three days previous to March 15, 1828.

Do. do. one dollar and fifty cents a day, from March 16th to May 31, 1828.

Do. do. two dollars a day, from June 1, 1828.

William Petrie, chainman, one dollar a day, until June 28, 1828, when transferred to the North Branch division.

Julius A. Jeger, chainman, one dollar a day, until May 31, 1828.

Do. target man, one dollar and fifty cents a day, from June 1, 1828.

George R. Mowry, chain-man, one dollar a day, until May 31, 1828.

Do. target man, one dollar and fifty cents a day, from June 1, 1828.

William Bower, jr. axe man, one dollar a day.

Richard Lloyd, do. one dollar a day.

Isaac High, do. one dollar a day, until July 30, 1828.

Nathan Kinsman, jr. do. one dollar a day, from July 31, 1828.

C. MOWRY,

*Acting canal commissioner.*

Pennsylvania Canal Office,  
November 3, 1828.

# CANAL REPORT.

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## No. 16.

### SUSQUEHANNA DIVISION, NO. 5

#### *Statement of Engineering and miscellaneous expenses on the Susquehanna Division.*

Statement of expenses paid on the Susquehanna division of the Pennsylvania canal, from December 15th, 1827, until December 1st, 1827.

Salaries to	Dolls.	Cts.
Charles Mowry, acting commissioner, 168 days from June 1st, 1828, to May 31st, 1828, at \$6 per day	504	00
Simeon Guilford engineer, three quarters, from August 4th, 1827, to May 3d, 1828, at \$2000 per annum	1,500	00
Hother Hage, for six and a half months as assis- tant engineer, at \$60 per month, 390 00	672	00
168 days as principal assistant engineer at \$4	1,062	00
F. W. Leopold, clerk, 20 days at two dollars per day, to December 24, 1827, 40 00	655	00
from December 25, 1827, 252 days at 2 50 a day, to Nov. 15, 1828.	695	00
J. A. Byers, 6 months and 9 days as assistant engineer at sixty dollars per month 392 00	266	00
on account of salary as principal assistant en- gineer, from June 1, 1828, at 2 75 a day,	658	00
F. H. Petrie, 6 months 9 days as assistant en- gineer, at sixty dollars per month 378 00		
James Warford, 198 days as target man at 1 50 a day 297 00	336	00
168 days as assistant engineer, at \$2 a day,	653	00
J. H. Hopkins, 198 days as target man at 1 50 a day 297 00	336	00
168 days as assistant engineer at 2 a day	633	00
Franklin Wright, 185 days as target man, at 1 50 a day 277 50	336	00
168 days as assistant engineer at \$2 a day	613	50
Charles O. Sanford, 32 days as drafts-man at \$1 a day 32 00		
94½ days do. at \$1 50 a day 141 75		
163 days do. at 2 a day 326 00	469	00

William Petrie, 171 days as chain-man at \$1 a day	171 00	
28 days, as target man at 1 50 a day	42 00	
	<hr/>	213 00
Julius A. Jeger, 170 days as chainman at \$1 a day	170 00	
137 days as target man at 1 50 a day	205 50	
	<hr/>	375 50
Geo. R. Mowry, 171 days as chainman at \$1 a day	171 00	
137 days as target man at 1 50 a day	205 50	
	<hr/>	376 50
E. Wheelock, 112 days as target man at 1 50 a day		168 00
Samuel Gillis, on account as superintendant of mechanical work from July 1828, at 2 50 a day		90 00
Martin Keperling, superintendant of masonry, 22 days at 1 50 cents a day		33 00
Michael Bower, junior, 287 days as axeman at \$1 a day		287 00
Isaac High, 221 days, to July 30th, 1828, at \$1 a day		221 00
Richard Lloyd, 300 days as axeman, at \$1 a day		300 00
Nathan Kinman, 66 days as axeman, from July 31 to October 4, 1828		66 00
Engineering instruments and for repairs of instruments		113 30
Printing and advertising		216 78
Stationary and book binding		141 55
Postage and transportation of books and papers		68 68
Office rent		50 00
Office furniture		43 03
Fuel, candles and oil		30 93
A skiff, used in construction of Shamokin dam		8 00
Hire of hands in locating Shamokin dam		9 00
		<hr/>
		39,956 79

CHARLES MOWRY,

*Acting canal commissioner.*

*Pennsylvania canal office,  
Liverpool, December 1st, 1828*

CANAL REPORT

Series 3.

No. 1.

REPORT of the superintendent on the Delaware division of the Pennsylvania canal, 20th November, 1827, and documents annexed thereto.

To the board of canal commissioners of Pennsylvania

GENTLEMEN,

In making out the annual report of the Delaware division of the Pennsylvania canal, which I have the honor to lay before you, my attention has been directed chiefly to the following points:

1. To exhibit a detailed report of the present situation of the work, with the amount of monies paid on contracts.
2. The amount of damages paid to individuals.
3. A list of all engineers, superintendents, assistant engineers, and clerks employed on the division, with the wages of each.

The tabular statements marked A. B. C. D and E. showing the several kinds of work, the contractor's names, contract prices, quantities of work done, amount of monies retained to ensure the completion of the work, and the amount paid on each contract, it is believed will exhibit a view of the present situation of the work in the most concise and satisfactory manner that could be adopted.

Statement F. shows the amount of damages paid from the commencement of the work up to the present time, to whom, and as far as the limits of a tabular statement will admit, on what account. No suits for damages have yet been brought.

Statement G. exhibits the organization of the engineer department, and of persons employed on the line.

The statement of Mr. Sargent, the engineer on this division, annexed to this report, and marked H. shows the probable amount of work remaining to be done, with an estimate of what the same will cost at contract prices. I have also added a general recapitulation of the whole, to which is annexed a comparison between the original estimate of the engineer and the amount at contract prices, with a view to conform as nearly as possible with the requisition of the fourth section of the act of 16th of April, 1827.

By a reference to the aforesaid statements, it will be seen that since the 13th October, 1827, 106 sections of about half a mile each, making nearly 53½ miles of canal, together with the basin at Bristol, and all the mechanical work of every description, with the exception of houses for the accommodation of lock-keepers, have been contracted for; 37 of those sections have been completed in a handsome and satisfactory manner, and the remainder as far as section 87, are progressing with steadiness and energy; those let on the 18th of the present month, see statement D. will be commenced immediately.

With the exception of six waste wiers, which are completed, see statement E. and some work on culverts and bridge abutments, nothing has yet been paid on account of any part of the mechanical

work, that has been let at different times through the summer, and the necessity of procuring suitable timber for every part thereof, from the country up the Delaware, rendered it indispensable that the contractors should have it in their power to avail themselves of the spring freshet in the river for that purpose; it was therefore, distinctly stipulated at the time of making the contracts, that all the materials should be procured this fall and winter, so that the work might be commenced on the line as early next spring as the season would admit of.

About six miles, with the mechanical work on it, only remains to extend the line from Bristol to Easton; that will be advertised for contract whenever the board see proper to direct it to be done.

In closing this report it gives me no small pleasure to state, that with the exception of the prevalence of sickness to a very unusual degree in the neighbourhood, throughout the latter part of the summer, and in which the engineer corps have suffered severely, so far, the steady and uniform progress of the work has been impeded by but few of those difficulties generally attendant upon works of its magnitude. No losses or extra expense have in any case occurred to the state, and but rarely to individuals; for although the prices at which the work has been contracted for and executed, are justly esteemed low, yet by persevering industry and rigid economy, the contractors have, with one or two trifling exceptions, been able to complete their jobs in a workmanlike and satisfactory manner. Indeed, it is due to them and to the hands employed on the line, to state distinctly, that their uniform good conduct has happily dissipated those unpleasant apprehensions which not a few entertained, previously to the commencement of the work, and been the means of allaying many of the prejudices against it.

Respectfully submitted,

TH. G. KENNEDY.  
*Superintendent.*

*Canal Office, Delaware Division,  
November 20, 1828.*

## No. 7.

### STATEMENT F. DAMAGES.

	Amount.
Robert H. Scott, for about $\frac{1}{4}$ of an acre of his lot in Falls township, occupied by the canal, temporary damages included	\$ 12 50
Samuel Vaughn, for the canal passing diagonally through his tavern lot in Tyburn, and the destruction of about 3 acres of rye,	208
Cornelius Slack, jr. for the destruction of part of a field of rye, injury done to fences, removing do. and in lieu of a temporary bridge,	17 50



**Sections 1 to 10**

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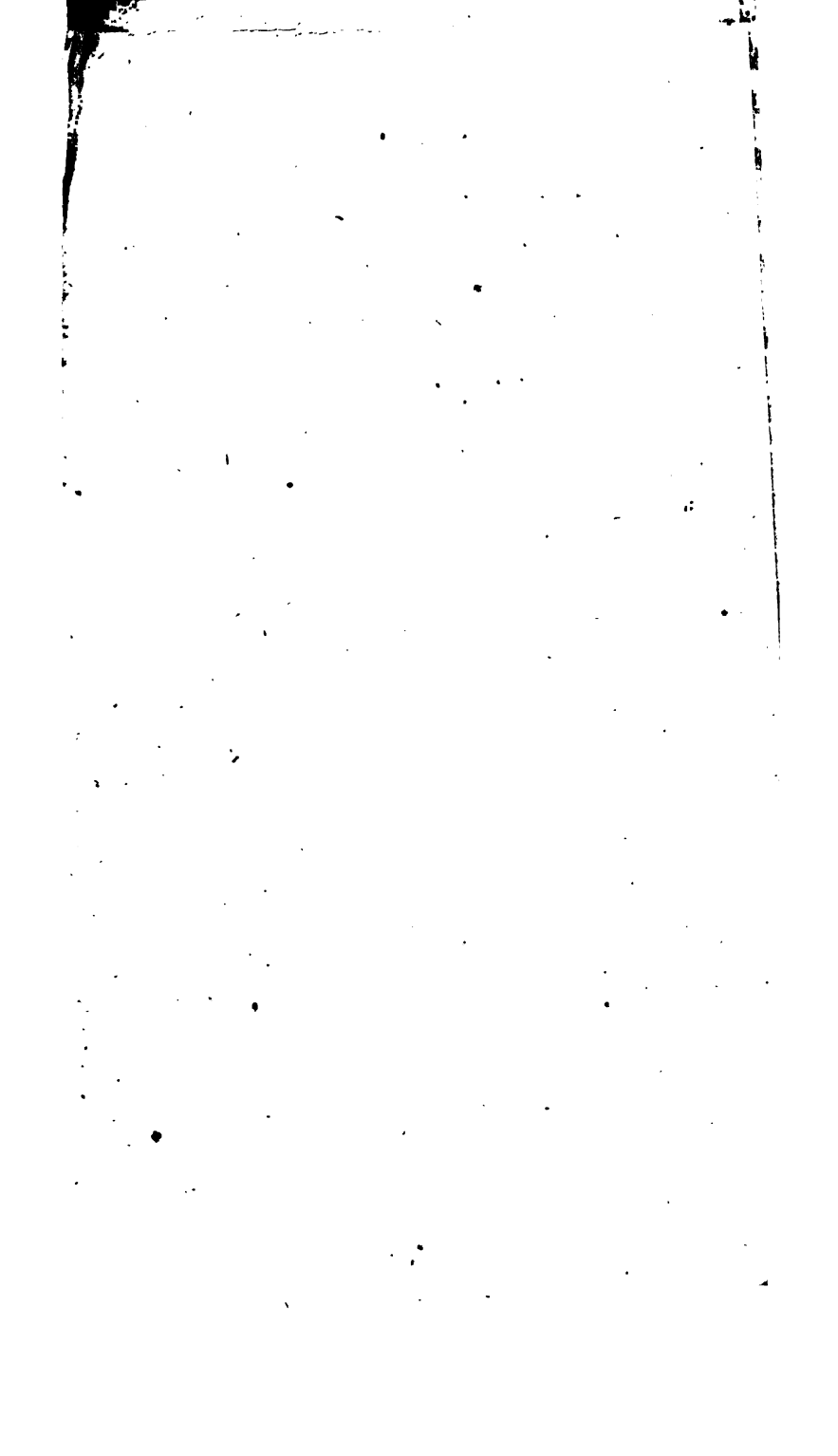
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# CANAL REPORT.

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Benjamin Albertson, for 4 a. 130 p. of his farm in Falls township, occupied by the canal; temporary damages included,	
Heirs of Dr. A. Gregg, for $\frac{1}{2}$ of an acre in Bristol, occupied by the canal—33 perches cut off and purchased in fee—injury done to orchard, fences, &c.	\$ 240 62 $\frac{1}{2}$
Joseph Stackhouse, for about 2 $\frac{1}{2}$ acres of his farm in Bristol occupied by the canal; destruction of wheat crop, and other temporary damages,	150
William Kinsey, for about 48 perches of his lot in Bristol, occupied by the canal, and 109 perches cut off and purchased in fee	\$10
Benjamin Wright, for about 122 perches of his farm in Bristol, occupied by the canal, and 35 perches as a roadway—destruction of rye crop included,	100
Hannah Mason, for the entire destruction of her garden and the produce of an acre of ground in Falls township,	55
John Russell, for the destruction of his garden and the removal of fences, &c. on the farm he occupies in U. Makefield,	15
Abraham Slack, for the removal of fences and injury done to crops on the farm he occupies in L. Makefield,	20
Abner Harvey, for the removal of fences and injury done to crops on the farm he occupies in U. Makefield,	13 50
Abraham Swain, for about 1 a. 128 perches of his farm in Bristol, occupied by the canal, and releasing his claim to a bridge,	20
George White, for erecting a temporary bridge across the canal on his lot in Yardleyville,	95
Thomas Runyan, for removing his dwelling house, shop, &c. and the occupancy of greater part of his two lots in Morrisville,	2 75
Jacob L. Walton, in lieu of a farm bridge, \$175, and of 187 rods of fencing at 75 cts—he releasing the state forever,	250
William Paff, in lieu of a farm bridge, \$225, and of 236 rods of fencing at 75 cts.—he releasing the state forever,	\$15 25
Mahlon Yardley, in lieu of 229 rods of fencing at 75 cts. per rod—he releasing the state forever,	402
George Yardley, in lieu of 289 rods of fencing at 75 cts per rod—he releasing the state forever,	171 75
	216 75

Solomon Wildman, for the destruction of grass, deprivation of water and other temporary damages,	\$ 10
Cornelius Slack, senr. for the destruction of part of his wheat crop,	6
Henry Reading, for the destruction of his garden, injury to his well, &c.	6 50
Samuel Hibbs, for about perches of his lot in Bristol, occupied by the canal, and 74 perches purchased in fee,	75
George Grubham, for about 3 a. 66 perches of his farm in Falls, occupied by the canal, including temporary damages,	170 62½
James Johnson, conveyed to him 1 a. 56 perches of land in Bristol, purchased from the heirs of Dr. A. Gregg, William Kinsey and Samuel Hibbs, as a compensation for damages done to his farm in Bristol, by the occupancy of about the same quantity of it.	
	<hr/> \$2,893 75

### No. 8.

#### STATEMENT G.

Exhibiting a list of the persons employed in the engineer department, with the wages or salary of each.

- Henry G. Sargent, engineer, from 5th November, 1827, \$2,000 per annum.
- Emerson McIlvaine, assistant engineer, 5th Nov. 1827, to 9th April last, sixty dollars per month.
- Emerson McIlvaine, principal engineer, 10th April last to 31 Oct. four dollars per day, resigned.
- Frederick C. Mills, assistant engineer, 3d April to 9th April, sixty dollars per month.
- Frederick C. Mills, assistant engineer, 10th April, three dollars and fifty cents per day.
- James B. Sargeant, assistant engineer, 5th Nov. two dollars per day.
- Charles L. Schlatter, assistant engineer, 5th Nov. two dollars per day.
- Thomas Stewart, Jr. target bearer, 5th Nov. to 31st March, one dollar and fifty cents per day.
- Thomas Stewart, jr. assistant engineer, 1st April, two dollars per day.
- Michael S. Heaney, target bearer, 5th Nov. to 30th June, one dollar and fifty cents per day.
- Michael S. Heany, assistant engineer, 1st July, two dollars per day.



Augustus W. Kennedy, assistant engineer and draftsman, 1st July, two dollars per day  
 John C. Stocker, assistant engineer, 4th Aug. two dollars per day.  
 Simpson Torbert, do. 1st Oct. two dollars per day.  
 Joseph B. Conard, target bearer, 9th April, one dollar and fifty cents per day.  
 Anthony B. Johnson, do. 15th April, one dollar and fifty cents per day.  
 John D. Steele, target bearer, 26th May, one dollar and fifty cents per day.  
 Charles Carey, target bearer, 21st July, one dollar and fifty cents per day.  
 Charles Heckman, target bearer, 3d June, one dollar and fifty cents per day.  
 James McKeen, target bearer, 4th August, one dollar and fifty cents per day.  
 Ralph Harrison, axeman, 5th Nov. one dollar per day.  
 David Kirgan, do. do. one dollar per day.  
 Charles G. Thomas, chain carrier and axeman, 15th April, one dollar per day.  
 William M. Cowell, axeman, 14th July, one dollar per day.  
 William W. Heany, chain carrier and axeman, 19th May to 18th Nov. one dollar per day—discontinued.  
 Christopher Weaver, axeman, 4th Aug. to 28th September, one dollar per day—dead.  
 Daniel Troxell, axeman, 30th Sept. one dollar per day.  
 A clerk, when necessary, 1st April, two dollars and fifty cents per day.  
 T. G. Kennedy, superintendant, three dollars per day.

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## No. 9.

### STATEMENT H.

Showing the amount of work, now under contract, and remaining to be done on the Delaware division of the Pennsylvania canal, carefully estimated and calculated at contract prices.

On section,	Dolls. Cts.
1. The basin, pier and tide lock at Bristol—lift locks No. 1, 2 and 3—culvert No. 1 turnpike bridge No. 1. fencing and all the grubbing, excavation and embankment of the section,	29,154 41
2. Road bridge No 2, and fencing,	705 39
3. Farm bridge No. 3, and fencing, culvert No 2, and waste wier No. 1,	1,614 45
4. Fencing	233 60
5. Road bridge No. 4 and 5, fencing	1,138 93
6. Road bridge No. 6 fencing and lock No. 4,	4,581 22

7. Farm bridge No. 7 fencing and culvert No. 3,	1,161 69
8. Farm bridge No. 8 fencing and culvert No. 4	1,171 55
9. Farm bridge No. 9 and 10, fencing and culvert No. 5	1,314 19
10. Road bridge No. 11, and fencing	648 89
11. Road bridge No. 12, fencing and culvert No. 6	1,083 27
12. Fencing and culvert No. 7	940 22
13. Road and turnpike bridge No. 13 and 14, and fencing	1,194 93
14. Farm bridge No. 15, and fencing	873 24
15. Road Bridge No. 16, and fencing	649 78
16. Farm and turnpike bridge No. 17 and 18, and fencing	1,236 80
17. Road bridge No. 19, and fencing	511 60
18. Farm bridge No. 20 and 21, and fencing	619 08
19. Road bridge No. 22, fencing	622 23
20. Road bridge No. 23, fencing and about 2985 cubic yards of very hard Rock Excavation	2,519 55
21. Road bridge No. 24, and fencing	770 79
22. Road and foot bridge No. 25 and 26 and fencing and culvert No. 8	1,202 17
23. Foot bridge No 27 fencing	360 56
24. Fencing and 100 yards of embankment at a spring run	215 60
25. Road bridge No. 28 and fencing	663 41
26. and 27. Fencing	467 20
28. Farm bridge No. 29 and fencing, and lock No. 5.	4,293 36
29. Farm and road bridge No. 30 and 31 and fencing culvert No. 9 and aqueduct No. 1	3,004 79
30. Farm bridge No. 32 and 33, and fencing	595 20
31. Road bridge No. 34 and fencing and lock No. 6	4,414 51
32. Road and farm bridge No. 35 and 36, and fencing, and lock No. 7, and some excavation and embankment at Slack's run	5,206 35
33. Road and farm bridge No. 37 and 38 and fencing, and some embankment at waste weir No. 5	962 17
34. Farm bridge No. 39 and 40 and fencing	577 92
35. Farm bridge No. 41 and fencing and aqueduct No. 2	3,355 52
36. Farm bridge No. 42 and 43 and fencing	528 72
	<hr/>
	78,127 50
37. Farm and road bridge No. 44 and 45 and fencing	720 54
38. Farm bridge No. 46 and fencing, and some grubbing and excavation	630 51
39. Farm bridge No. 47 and 48 and fencing	555 48
40. Farm bridge No. 49 and 50, and fencing and grubbing and earth and rock excavation	1,675 18
41. Road and foot bridge No. 51 and 52, and fencing aqueduct No. 3 and 1573 cubic yards, aqueduct embankment in section	3,831 08

42. Fencing and excavation, embankment and protection wall outside	3,603 72
43. Road bridge No 53 fencing and excavation embankment and protection wall outside	4,275 83
44. Farm bridge No 54 and fencing and excavation	890 93
45. Fencing	283 60
46. Farm bridge No 55 and fencing, grubbing, excavation and embankment	1,345 50
47. Fencing, grubbing, excavation, embankment, and protection wall outside	2,390 62
48. Fencing, excavation and embankment and protection wall outside	1,572 61
49. Road bridge No 56 and fencing, locks No 8 and 9 excavation and embankment and protection wall outside	14,249 57
	<hr/>
	35,975 17
50. Road and farm bridge No 57 and 58 and fencing locks No 10 and 11 aqueduct No 4 culvert No 10 and excavation	16,583 01
51. Road bridge No. 59 and 60 and fencing, grubbing, excavation and embankment	2,826 19
52. Road bridge No 61 and fencing, culvert No 11 and grubbing, excavation and embankment	3,856 10
53. Fencing, grubbing, excavation and embankment	1,851 60
54. Farm bridge No 62 fencing, culvert No 12 grubbing, excavation and embankment	5,005 50
55. Farm bridge No 63 and 63a fencing, grubbing, excavation and embankment	2,622 05
56. Farm bridge No 64 and fencing, grubbing, excavation and embankment	2,149 60
57. Road bridge No 65 and fencing, culvert No 13 waste weir No 8 grubbing excavation and embankment and wall outside	4,493 65
58. Farm bridge No 66 and 67 and fencing, grubbing, excavation and embankment and wall outside	4,486 69
59. Farm bridge No 68 and fencing, waste weir No 9 grubbing, excavation and embankment, and wall outside	7,706 10
60. Fencing, grubbing, excavation and embankment and wall outside	16,898 60
61. Road bridge No 69 and fencing, culvert No 14 grubbing, excavation and embankment and wall outside	18,627 60
62. Fencing, culvert No 15 and grubbing, excavation and embankment and wall outside	8,441 37
63. Farm bridge No 70 fencing, lock No 12 grubbing, excavation and embankment and wall outside	11,116 85
64. Farm bridge No 71 fencing, aqueduct No 5 grubbing, excavation and embankment and wall outside	11,769 70

65 Fencing, waste weir No 10 grubbing excavation, and embankment and wall outside	15,808 20
66 Road bridge No 72 fencing, locks No 13 and 14 waste weir No 11, grubbing, excavation and embankment and wall outside	11,389 59
67 Farm bridge No 73 and 74 fencing, aqueduct No 6, grubbing, excavation and embankment and wall outside	8,116 87
68 Farm bridge No 75 fencing, grubbing, excavation and embankment and wall outside	1,374 76
69 Farm bridge No 76 fencing, waste weir No 12 grubbing, excavation and embankment and wall outside	1,862 65
70 Fencing, grubbing, excavation, and embankment and wall outside	14,374 80
71 Fencing grubbing excavation and embankment and wall outside	11,259 24
72 Farm bridge No 77 and 78 fencing, locks No 15 and 16, waste weir No 13 grubbing, excavation and embankment	9,174 81
73 Farm bridge No 79 fencing, grubbing, excavation and embankment	3,006 68
74 Fencing, lock No 17, grubbing, excavation and embankment	8,471 39
75 Fencing, grubbing, excavation and embankment	2,257 52
76 Farm and road bridge No 80 and 81 fencing aqueduct No 7 grubbing, excavation and embankment	7,372 80
77 Farm bridge No 82 fencing waste weir No 14 grubbing, excavation and embankment	7,505 88
78 Farm and road bridge No 83 and 84, fencing, grubbing excavation and embankment	4,156 64
79 Fencing, grubbing, excavation, and embankment	993 60
80 Fencing, grubbing, excavation and embankment	2,153 48
81 Farm bridge No 85, fencing, lock No, 18 grubbing, excavation and embankment	6,452 67
82 Fencing, grubbing, excavation and embankment	1,327 68
83 Farm bridge No 86, fencing, grubbing, excavation and embankment	2,245 28
84 Farm bridge No 87, fencing, grubbing, excavation and embankment	2,282 74
85 Farm bridge No 87, a fencing lock No 19 waste weir No 15, grubbing, excavation and embankment	6,431 61
86 Farm bridge No 87 b and 87 c grubbing, excavation and embankment	5,365 10
87 Farm bridge 88 fencing, grubbing, excavation, embankment	3,799
88 Farm and road bridge 89 and 90 fencing, grubbing, excavation	2,011 10

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89	farm and road bridge 91 and 92, fencing, excavation	1,851
90	farm bridge 93 and 94, fencing, culvert No. 16, grubbing, excavation, embankment	3,966
91	farm bridge 95, fencing waste wier No 16, grubbing, excavation, embankment	2,146 66
92	fencing, grubbing, excavation, embankment	3,304
93	farm bridge 96, fencing, grubbing, excavation, embankment and protection wall outside,	7,041 50
94	fencing, grubbing, excavation, embankment and protection wall outside	13,640 40
95	farm bridge 97, fencing lock No 20, grubbing, excavation, embankment and protection wall outside	19,995
96	farm bridge 98, fencing aqueduct No. 8, grubbing, excavation, embankment and protection wall outside	12,744 70
97	farm and road bridge 99 and 100, fencing, grubbing, excavation,	2,510
98	road bridge 101, fencing, grubbing, excavation,	3,162 50
99	road bridge 102, fencing culvert No 17, waste-wier No 17, grubbing, excavation, embankment and protection wall outside	12,082 10
100	fencing lock No 21, aqueduct No 9, culvert No 18, grubbing excavation, embankment and protection wall outside	17,519 54
101	road bridge 103, fencing, grubbing, excavation, embankment	1,759 63
102	farm and road bridge 104 and 105, fencing, grubbing, excavation	2,004 98
103	fencing, grubbing, excavation, embankment and protection wall outside	3,829 50
104	fencing waste wier No 18, grubbing, excavation, embankment and protection wall outside	11,804 30
105	fencing culvert No 19, grubbing, excavation, embankment and protection wall outside	12,121 50
106	fencing, grubbing, excavation, embankment and protection wall outside	22,047 60
		<hr/>
		158,940 78
		<hr/>
		3520,564 05

*To the Superintendent of the Delaware Division of the Pennsylvania Canal.*

SIR—

In compliance with the instructions from the board of canal commissioners, which were communicated by you on the 1st instant, I herewith transmit an estimate at contract prices, of the amount of work remaining to be done, from section I to 106, inclusive, extending from Bristol to a point near Godfrey Raub's, and about six miles south of the Lehigh at Easton. In making this esti-

mate, I have included under the head of each section, all the mechanical work that will occur, also the amount of cubic yards of excavation, embankment, rock or hardpan, as nearly as the different items can be determined previous to the execution of the work, which, on a few sections, is not commenced. It is, therefore, probable that the completion of the work may change the amount of different items, but it is confidently believed, that the sum total cannot be materially affected.

H. G. SARGENT,  
*Engineer.*

*Canal Office, Delaware Division,*  
*November 20, 1828.*

## GENERAL RECAPITULATION.

Amount paid for work of sections from 1 to 36 inclusive, see A	\$70,275 81
do do 37 to 49 do B	24,289 73
do do 50 to 86 do C	3,896 60
	<hr/>
do do on culverts E	579 08
do do wastewaters E continued	1,443 08
do do bridges do	573 64
	<hr/>
	\$ 98,462 14

\$ 101,057 88

---

2,595 74

Total amount paid for work done up to 30th November, 1828,	4,722 23
Amount retained till completion on sections see A, B and C	90
do do on culverts see E	137
do do on bridges see E continued	<hr/>

\$ 4,949 23

Total amount retained	78,127 50
Amount of work remaining to be done from section 1 to 36 inclusive, see H	35,975 17
do do do 37 to 49 do	247,520 60
do do do 50 to 86 do	158,940 78
do do do 87 to 106 do	<hr/>

520,564 05

Amount required to complete the work now under contract

101,057 88

Add the amount already paid as above

4,949 23

To which add the amount retained as above

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106,007 11

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626,571 16

Total cost of canal from section 1 to 106 inclusive, at contract prices

## GENERAL RECAPITULATION, (Concluded.)

To which add original estimate of the engineer, for the remaining 6 miles—see his report of Aug. 20, 1827, viz:  
Cost of sections 1, 2, 3, 4, 5, 6, in that report, estimated for  
4 feet water 102,070 81

Add for the additional cost of 5 feet water 4,000

Add for lockage and wastewiers on said 6 miles 12,500

do dam across Lehigh 6,000

Add 10 per cent.

124,570 81  
12,457 08—137,027 89

Total cost of the canal from Bristol to Easton, from the foregoing data

From which deduct the amount paid on work as above

763,599 05  
101,057 88

Sum necessary to complete the work

*Note.*—Damages, houses for the accommodation of lock keepers and current contingent expenses, not having been estimated, are consequently not embraced in the foregoing recapitulation.

*Comparison between the original estimate of the Engineer and the actual contract prices.*

Total cost of canal from Easton to Bristol, see engineers report of 20th August, 1827, \$ 686,596 77

To which add for additional cost of locks and road bridges, on the plan adopted, over that on which the original estimate was predicated 64,575

Add for fencing on the river sections, not included in the original estimate, but included in the amount at contract prices, as a protection either of fencing or wall, to an equal amount, will be necessary in those places, 3,840

755,011 77

Total cost of canal at contract prices from section 1 to 106 inclusive, and at the original estimate from thence to Easton, see foregoing recapitulation, 763,599 05

Deficit in original estimate,

\$ 8,587 22



## Series 6.

## DOCUMENTS RELATING TO THE NORTH BRANCH DIVISION.

## No. 1.

*Report of C. T. Whippo, engineer, on the first location of the North branch line.*

*To the canal commissioners of the state of Pennsylvania.*

GENTLEMEN,

My instructions furnished by Jos. M'Ilwaine, esq. superintendant of surveys, were received on the 24th day of April, from which the following is an extract.

"Your survey and location must necessarily begin at some convenient point for introducing the water of the river into the canal. All accounts agree in representing that the Nanticoke fall about fifty miles above Northumberland, at the foot of the Wyoming valley, affords peculiar advantages for this purpose. At that point, therefore, you will begin your survey, and will continue it downwards on the west side of the river to Northumberland. As soon as you have accomplished a distance of twenty or twenty-five miles from this point, and have fixed its location satisfactorily to yourself, you will make a report on the subject, accompanied by such a draft as will enable the board to understand your plan."

I accordingly commenced at Nanticoke fall, and have run down 27 miles. This distance I have divided into sections of about half a mile each, and these into stations of three chains each. The whole has been located with care, the levels accurately taken, bench marks made, &c. and it is now ready to be put under contract. A few alterations will be necessary in some places which will be made on a revision of the line, and before the work is commenced.

Having made the necessary examinations at the falls, I became satisfied that this was the only point at which we could take a feeder for the supply of the canal below. This must be effected by damming the river.

The dam I propose to make six feet high, that is, six feet above low water mark, and as the depth of the river at this stage is about three feet, the average height of the dam will not vary much from nine feet. By adopting this height we shall not endanger the navigation of the river; the Plymouth flats will not be flowed, and although we shall be obliged to locate the canal within the reach of high floods, and protect a considerable part of it with stone wall, yet this location for the distance upon which we have to encounter this inconvenience, being seven miles and nine tenths will be nearly as favorable to economy, as if we had adopted a higher level. This arises from the fact that on about one half of this distance, the hills are so high and come in so close to the river, that we should be obliged to wall out in any event, and the wall to obtain a permanent foundation, for it would require to be commenced at the same height in both cases and in both cases also its height would be

equal to high floods. The only advantage, therefore, in a higher level, would be in crossing the flats when the cutting would be less. With the level I have adopted it will average about 12 feet.

The wall will require to be about sixteen feet high, on an average for nearly half the distance. This will effectually guard against any common floods, and as stone is very handy and abundant, the work can be done with a moderate expense.

Another advantage is that we can take all the streams in this distance into the canal, and use them as feeders, and save the expense of culverts, aqueducts and embankments. But with all the advantages with which we shall be able to avail ourselves, and with the strictest attention to economy, the expense of this part of the line will still be great. I have not as yet made any estimate not having been so instructed and cannot therefore, determine the amount. This duty I will attend to whenever required.

I have given a descent upon the bottom of the canal of a tenth of a foot in a mile, which will occasion a velocity of current equal to half a mile an hour and give a quantity of water equal to 5928 cubic feet per minute.

This will supply the canal all the way to Northumberland, even with a maximum use of the locks, and supercede the necessity of taking a feeder from the river at any other place.

I herewith transmit maps, profiles and plans of the whole line under consideration.

On the first seven maps there were some errors committed in regard to the profiles, &c. but the following statement will give a correct idea of these sections.

*Excavation on map No. 2. 30 stations*

do.	do.	3-30	do.
do.	do.	4-9	do.
do.	do.	5-27	do.
do.	do.	6-15	do.

---

111 stations.

*Wall on map No. 1. 27 stations*

do.	do.	4-21	do.
do.	do.	5-5	do.
do.	do.	6-15	do.
do.	do.	7-32	do.

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100 stations.

On map No. 8, we wind off on to the flats, and a profile of the ground is there given. In our progress downward however, we are frequently interrupted by bluffs and hills, which project in, so close to the river, that we shall have to construct the canal along its shore and protect it with stone wall.

One of these places is at Longshore's ferry, and is represented on map No. 9. Another about 70 rods below this, and a third, just before we enter the lands of Nathan Beach. See maps Nos. 10 and 11. These two last places are very difficult. The hills are composed of sand and gravel, and are evidently disposed to slip. Here we shall also be obliged to construct the canal in the river, and fortify it with heavy stone wall. To guard against slipping and washing, the shrubbery should be carefully preserved on the side hill, and more planted where it may be necessary. Below this point, to the upper end of Rocky island, we have smooth even ground, but here a high bluff of slate rock puts in and obliges us to drop down by lock of ten feet, and to locate the canal along the margin of the river.

This difficulty however, continues only twenty-one chains, and then we come on to flats again, upon which we are enabled to make a favourable location all the way to Berwick. This flat though sufficiently wide for the canal is still so narrow as to render it necessary to remove some buildings. Amongst these are some of the out buildings of Mr. Leidy, a shed belonging to Mr. Morris, near the bridge, and a small building attached to Col. Snyder's tannery. None of these are of much value.

Opposite to Berwick we propose to make a lock of eight feet lift. The object of this is to keep the level as low as possible, consistently with the height of the floods, which will greatly lessen the amount and expense of wall, a heavy item at this place, as it extends a mile down, and stone are very difficult to be obtained for its construction. This part of the line is represented on map No. 19. The remaining part of the distance we have fine level ground, and no difficulty except at Brier creek. This must be crossed by culvert and embankment, but as materials for both are very convenient, the expense will not be great. On map No. 24, two buildings must be removed, one a small saw mill and the other a dwelling house, both belong to John Knorr: neither of these buildings are very valuable.

On map No. 24, we have a nine foot lock which enables us to keep on level ground and avoid the side hill.

The number of locks upon this line will be four, viz. One a guard lock at Nanticoke falls, and the others lift locks at the places above mentioned.

The dam at Nanticoke, I propose to build of cribs of hewn timber strongly tied together and filled with stone and gravel.

The locks I would also make of wood, some of the advantages of which I have set forth in my report of last winter, see documents attached to the reports of the canal commissioners to the legislature, page 225. On the plan of the locks I would propose, it requires the same excavation for the lock pit as for a stone lock, and the same expense in laying the foundation. Every part below the top water line of the lower level however, may be considered durable for an indefinite term of time. Indeed, this point I think will be conceded by the advocates of stone locks, for I believe they do not

object to wood for foundations, and on the Erie canal they are nearly all made of wood.

We then come to this result, that the only part of a wooden lock, more perishable than one of stone, the gates in both being equal, is above the top water line of the lower level.

Stone locks have been estimated at one thousand dollars per foot lift, but the expense must be subject to great variation. For instance, locks of small lift sometimes occur. A lock of three feet lift requires the same depth below top water line as one of ten foot lift, and one foot of course above the upper level. If the lock floor be nine inches below the top of the mitre sill with the thickness of the floor three inches to say nothing of the timbers, then the sides must be three times as high as the actual lift, which in one of ten feet lift, this extra work only forms  $\frac{6}{16} = \frac{3}{8}$  of the amount instead of two-thirds of it. The same principle applies to wooden locks. The expense will be greater or less, according to the lift, but the average cost exclusive of the pit, and where timber is convenient, I believe will not vary much from \$150 or at most \$200 per foot lift. Here I suppose it can be procured cheap, particularly pine, which is considered equally as good as oak, and is commonly preferred on account of its being lighter and more easily worked.

A serious difficulty with the locks on the New York canal, has been occasioned by the use of bad lime. One advantage of wooden locks is, that they need none; another is that they can be repaired in winter when the canal is not navigated. The true principle in works of this kind, is to effect our object with the least possible expense. This I think we shall do with the use of wooden locks for while they last, there can be no doubt but they will answer equally as well as those of stone. The only question will be in regard to their durability. Upon this score there can be no doubt; but I am fully satisfied that the interest on the difference of expense will greatly exceed the expense of repairs.

In my report of last winter, I allowed that wooden locks would last only ten years, and that an expense at that time equal to their original cost would be required to put them in repair. This was evidently placing them upon too unfavourable a footing, for I am satisfied from the best information I can get, that even the upper timbers will last sixteen years, and some say twenty. But allowing them to last only sixteen years, and the difference of expense to be \$7000 upon a ten feet lock, then at the time they require repairing, it will be seen that this sum at 6 per cent. per annum, simple interest, will amount to \$13,720. If from this we deduct \$1,720, which I think will pay for all the intermediate repairs, and put them in as good condition as at first, then we shall have a saving of \$12,000, which being put at interest at the same rate for the next succeeding sixteen years, will amount to \$23,520. Deduct \$1,720 for repairs again, and we have a clear saving of

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# CANAL REPORT.

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21,800 for thirty-two years. But this is for one lock. Let us apply it to all the locks which may be made on the North Branch (say 34) and we have \$741,290 saving, for the same term of time, a sum not only equal to the repairs of locks, but a large portion of the canal also.

Since writing the above, I have made a second examination of the ground at Rocky island, and believe that the cheapest method of making a canal along the rocky and precipitous banks at that place will be to throw a dam sufficiently high and wide for a towing path across to the head of the island—extend the towing path along the island to its lower end, and then by dam again cross over to the main land. This will save walling 21 chains. and will give us the advantage, of a broad, deep canal, which is an important object, and should always be obtained whenever it can be without increasing the expense.

Respectfully submitted,

CHARLES T. WHIPPO,

Berwick, May 30, 1828.

## No. 3.

An estimate of the cost of the North Branch Division of the Pennsylvania canal, from Nanticoke falls to section No. 73, inclusive, with the other works connected therewith; including also the dam to be constructed across the river near the said falls.

*Beginning with the dam.*

*(At contract prices.)*

100,000 feet of lineal timber at 5½ cts. per foot,	\$5,250	
7,800 cubic yards of stone to fill dam and chute 30 cts.	2,340	
5,000 gravel or puddle for dam at 35 cts.	1,750	
168 perches of mason work for abutment at \$1 96,	329	
Clearing the bottom of the river for foundation and chute,	500	
Puddling, sheet piling, filling in with brush, &c.	250	
	<hr/>	10,419

## Locks.

Guard lock at Nanticoke 18 feet high at 128 73 per foot in height,	2,317 14	
Lock No. 1, of 11.6 feet lift at 150 per foot lift,	1,740	
Paddle gates,	160	
	<hr/>	1,900 00

Lock No. 2, of 8 feet lift at 14 75 per foot lift,	1,198	
Paddle gates,	160	
	<hr/>	1,558 00
Lock No. 3, of 9 feet lift at 149 75 per foot,	1,547 75	
Paddle gates,	160	
	<hr/>	1,507 75

*Aqueduct over Briar creek.*

On section No. 64, 70 feet in length at 6 00,	420	
400 perches of mason work at 2 15 per perch.	860	
	<hr/>	1,280

Not con- tracted for.	{	Culvert on section No. 43, es- timated at	212
		do. on section No. 45,	50
		do. on section No. 46,	100
		Culvert on section No. 51, 100 perches of mason work at 2 50 per perch,	250
		do. on section No. 54, 100 perches at 2 50,	250

Not un- der con- tract.	{	Culvert on section 65, estima- ted at	50
		Culvert section 72, at	50
		do. do. 73, at	50
		21 farm bridges at \$200 each	4,200
		3 road bridges, at 250 each	750

## EXCAVATION AND CONSTRUCTION OF CANAL.

*Section No. 1.*

Vertical wall	5220 perches at 56 1/2 cts.	2,923 26	
Excavation	13,570 yards 10	1,357	
		<hr/>	4,280 26

*Section No. 2.*

Vertical wall	6,090 perches at 55 cts.	3,349 50	
Excavation	21,316 yards 8	1,705 28	
Embankment	6,080 12 1/2	760	
Grubbing and clearing		96	
		<hr/>	5,906 78

*Section No. 3.*

Vertical wall	5,762 perches at 50 cts.	2,881	
Excavation, common	18,165 yards 10	1,816 50	
Detached rock	2,819 45	1,268	
Grubbing and clearing		84	
		<hr/>	6,050 05



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## Section No. 4.

Vertical wall	6,022 perches at 50 cts.	3,011	
Excavation	17,131 yards at 10	1,713	10
Detached rock	2,008	40	803 20
Grubbing and clearing		100	
		<hr/> 5,637 30	

## Section No. 5.

Vertical wall	1,305 perches at 40 cts.	522	
Embankment	1,722 yards	13	223 86
Excavation	34,815	10	3,481 50
Grubbing and clearing			50
		<hr/> 4,277 86	

## Section No. 6.

Excavation	41,832 yards at 8 cts.	3,346	56
Grubbing and clearing			42
		<hr/> 3,388 56	

## Section No. 7.

Excavation	57,771 yards at 11 cts.	6,354	81
Grubbing and clearing			25
		<hr/> 6,379 81	

## Section No. 8.

Excavation	33,130 yards at 9½ cts	3,147	35
Grubbing and clearing			25
		<hr/> 3,172 35	

## Section No. 9.

Excavation	40,026 yards at 11½ cts	4,603	
Grubbing and clearing			96
		<hr/> 4,699	

## Section No. 10.

Excavation	58,737 yards at 10 cts	5,873	70
Grubbing and clearing			96
		<hr/> 5,969 70	

## Section No. 11.

Excavation	44,100 yards at 11 cts	4,851	
Waste weir			500
Grubbing and clearing			100
		<hr/> 5,451	

## Section No. 12.

Excavation	50,253 yards at 12½ cts	6,281	62
Grubbing and clearing			90
		<hr/> 6,371 62	

## Section No. 13.

Excavation	56,596 yards at 10½ cts	3,842	68
Grubbing and clearing			20
		<hr/> 3,862 68	

*Section No 14*

Excavation	19,572 yards at 10 cts	1,957 20
Outer slope wall	204 perches 45	91 80
Grubbing and clearing		20
		<hr/> 2,069

*Section No 15*

Outer slope wall	4,296 perches at 45 cts	1,933 20
Excavation	16,562 yards 84	1,449 17
Detached rock	429 perches 50	214 50
Slate rock	300 40	120
Grubbing and clearing		100
		<hr/> 3,816 87

*Section No 16*

Outer slope wall	3,972 perches at 70 cts	2,780 40
Excavation	16,520 yards 10	1,552
Detached rock	429 39	167 31
Slate rock	500 56	168
Grubbing and clearing		100
		<hr/> 4,867 71

*Section No 17*

Outer slope wall	3,310 perches at 40 cts	1,324
Excavation	23,304 yards 12 1/2	2,913
Hard pan	504 16	80 64
Solid rock	300 60	180
Detached rock	383 50	191 50
Grubbing and clearing		94
		<hr/> 4,783 14

*Section No 18*

Excavation	68,439 yards at 10 cts	6,843 90
Grubbing and clearing		25
		<hr/> 6,868 90

*Section No 19*

Vertical wall	1,340 perches at 75 cts	905
Excavation	57,322 yards 10	5,732 20
Detached rock	346 50	173
Grubbing and clearing		25
		<hr/> 6,835 20

*Section No 20*

Excavation	21,807 yards at 12 cts	2616 84
Vertical wall	6,090 perches 75	4,567 50
Detached rock	728 yards 57 1/2	273
Hard pan	757 50	378 50
Grubbing and clearing		210
		<hr/> 8,045 84

*Section No. 21.*

Excavation	27738 yards at 9 cts	2,496 42
Grubbing and clearing		15
		<hr/> 2,511 42

## CANAL REPORT.

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*Section No 22*

Excavation	25,632 yards at 9 cts	2,306 88	
Outer slope wall	204 perches 90	183 60	
Grubbing and clearing		100	
			<hr/> 2,590 48

*Section No 23*

Outer slope wall	1,836 perches at 90 cts	1,652 40	
Excavation	20,978 yards 9	1,888 02	
Grubbing and clearing		100	
			<hr/> 3,640 42

*Section No. 24.*

Excavation	20,895 yards at 10½ cts	2,193 97	
Grubbing and clearing		100	
			<hr/> 2,293 97

*Section No 25*

Excavation	33,198 yards at 10½ cts	3,479 49	
Grubbing and clearing		25	
			<hr/> 3,504 49

*Section No 26*

Outer slope wall	4,122 perches at 62 cts	915 64	
Excavation	17,560 yards 12	2,107 20	
Hard pan	942 15	141 30	
Detached rock	319 40	127 60	
Slate rock	150 50	75	
Grubbing and clearing		242	
			<hr/> 3,608 74

*Section No 27*

Outer slope wall	3,722 perches at 75 cts	2,791 50	
Excavation	17,560 yards 10	1,756	
Hard pan	712 16	113 92	
Detached rock	320 25	80	
Grubbing and clearing		242	
			<hr/> 4,983 42

*Section No 28*

Outer slope wall	3,810 perches at 40 cts	1,524	
Excavation	15,540 yards 8	1,243 20	
Hard pan	628 20	125 60	
Detached rock	712 50	356	
Grubbing and clearing		242	
			<hr/> 3,490 80

*Section No. 29.*

Outer slope wall	3,766 perches at 40 cts	1,506 40	
Excavation	16,120 yards 8	1,289 60	
Hard pan	692 18	124 36	
Detached rock	575 50	287 50	
Grubbing and clearing		231	
			<hr/> 3,439 06

## CANAL REPORT.

*Section No. 30.*

Outer slope wall	5,612 perches at 60 cts	3,367 20
Excavation	17,560 yards 9	1,580 40
Hard pan	1 0	37
Solid rock	1,220	50
Detached rock	1,342	30
Grubbing and clearing		402 60
		200
		<hr/> 6,197 20

*Section No. 31.*

Excavation	30,853 yards at 12½ cts	3,856 62
Hard pan	4,170	25
Detached rock	525	30
Inner slope wall	462 sq. yards 17	78 54
Grubbing and clearing		50
		<hr/> 5,125 14

*Section No. 32.*

Excavation	29,862 yards at 8½ cts	2,538 28
Hard pan	927	23
Detached rock	193	50
Grubbing and clearing		97 50
		15
		<hr/> 2,898 99

*Section No. 33.*

Excavation	19,173 yards at 8 cts	1,533 84
Grubbing and clearing		15
		<hr/> 1,548 84

*Section No. 34.*

Excavation	10,374 at 10 cts	1,037 40
Waste weir		500
Grubbing and clearing		84
		<hr/> 1,621 40

*Section No 35.*

Excavation	9,093 yards at 10 cts	909 30
Grubbing and clearing		55
		<hr/> 944 30

*Section No. 36.*

Excavation	7,938 yards at 9 cts	714 42
Vertical wall	6,090 perches 75	4,567 50
Solid rock	1,200 yards 50	600
Detached rock	1,120	30
Grubbing and clearing		336
		150
		<hr/> 6,367 92

*Section No. 37.*

Excavation	6,340 yards at 9 cents	570 60
Vertical wall	5,880 perches 50	2,940 00
Solid rock	150 yards 30	45 00
Grubbing and clearing		130 00
		<hr/> 3,685 60

# CANAL REPORT.

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## Section No. 38.

Outer slope wall	615 perches at 38 cents	233 70
Excavation	19684 yards 9	1,771 56
Grubbing and clearing		175 00

2,180 26

## Section No. 39.

Outer slope wall	4,310 perches at 56 cents	2,413 60
Excavation	17,684 yards 9	1,591 56
Grubbing and clearing		175 00

4,180 16

## Section No. 40.

Excavation	13,038 yards at 9 cents	1,173 42
Outer slope wall	570 perches 68	387 60
Grubbing and clearing		30 00

1,591 02

## Section No. 41.

Excavation	13,414 yards at 9 cents	1,207 26
Grubbing and clearing		75 00

1,282 26

## Section No. 42.

Outer slope wall	4,310 perches at 85 cts	3,663 60
Excavation	17,684 yards 9	1,591 56
Grubbing and clearing		11 0

5,415 06

## Section No. 43.

Outer slope wall	760 perches at 85 cts	646
Excavation	22,732 yards 11	2,500 52
Grubbing and clearing		100

3,246 38

## Section No. 44.

Excavation	14,306 yards at 11 cts	1,573 66
Grubbing and clearing		35

1,608 66

## Section No. 45.

Excavation	4,511 yards at 9 cents	405 99
Embankment	14,696 12	1,763 52
Grubbing and clearing		15

2,184 51

## Section No. 46.

Excavation	6,303 yards at 8 cents	504 25
Embankment	6,200 14	868
Grubbing and clearing		150—

1,522 25

## Section No. 47.

Excavation	16,044 yards at 11 cents	1,764 84
Grubbing and clearing		225

1,989 84

## Section No. 48.

Excavation	12,835 yards at 10 cents	1,283 50
Hard pan	824 25	206
Detached rock	640 50	320
Grubbing and clearing		225 00

2,034 50

## CANAL REPORT.

## Section No. 49.

Excavation	11,620 yards at	7 cents	815 40
Hard pan	565	at 18	101 70
Grubbing and clearing			15 00
			<hr/> 930 10

## Section No. 50.

Excavation	11,620 yards at	9½ cents	1,103 90
Hard pan	580	at 25	145 00
Grubbing and clearing			50 00
			<hr/> 1,298 90

## Section No. 51.

Excavation	13,073 yards at	8½ cents	1,111 20
Embankment	1,621	at 9	145 89
Hard pan	2,358	at 18	424 44
Grubbing and clearing			75 00
			<hr/> 1,756 53

## Section No. 52.

Excavation	14,481 yards at	10 cents	1,448 10
Embankment	1,100	at 14	154 00
Hard pan	810	at 25	202 50
Slate rock	210	at 25	52 50
Detached rock	150	at 17	25 50
Outer slope wall	1,200 perches at	60	720 00
Grubbing and clearing			55 00
			<hr/> 2,657 60

## Section No. 53.

Outer slope wall	1,600 perch.	at 90 cents	1,440 00
Excavation	17,012 yards at	11	1,871 32
Embankment	6,840	at 13	889 20
Hard pan	1,142	at 18	205 56
Detached rock	310	at 38	117 80
Grubbing and clearing			60 00
			<hr/> 4,583 88

## Section No. 54.

Excavation	11,846 yards at	10 cents	1,184 60
Hard pan	1,300	at 25	325 00
Slate rock	1,642	at 37½	615 75
Detached rock	150	at 16	24 00
Grubbing and clearing			174 00
			<hr/> 2,323 35

## Section No. 55.

Excavation	23,712 yards at	8 cents	1,896 96
Hard pan	610	at 12½	76 25
Detached rock	720	at 25	180 00
Outer slope wall	4,100 perch.	at 65	2,665 00
Grubbing and clearing			320 00
			<hr/> 5,138 21

# CANAL REPORT.

10.

## Section No. 56.

Excavation	12,856 yards at	8 cents	1,068 48
Hard pan	3,700	at 25	925 00
Detached rock	1,522	at 25	380 50
Outer slope wall	2,120 p'rch. at	62½	1,325 00
Grubbing and clearing			180 00

3,878 98

## Section No. 57.

Excavation	3,400 yards at	8 cents	912 00
Hard pan	850	at 18	153 00
Detached rock	150	at 50	75 00
Grubbing and clearing			84 00

1,224 00

## Section No. 58.

Excavation	3,400 yards at	10 cents	340 00
Embankment	21,20	at 12½	2,640 00
Square timber	28,512 ft. lineal at	7½	2,138 40
Round timber	25,640	at 5	1,282 00
Grubbing and clearing			90 00

6,490 40

## Section No. 59.

Embankment	28,950 yards at	12½ cents	3,618 75
Square timber	35,640 ft. lineal at	7½	2,653 00
Round timber	44,560	at 5	2,228 00
Grubbing and clearing			250 00

8,749 75

## Section No. 60.

Embankment	28,950 yards at	12½ cents	3,618 75
Square timber	35,640 ft. lineal at	7½	2,653 00
Round timber	44,560	at 5	2,228 00
Grubbing and clearing			250

8,749 75

## Section No. 61.

Excavation	7,968 yards at	7 cents	557 76
Grubbing and clearing			45 00

602 76

## Section No. 62.

Excavation	13,944 yards at	9 cents	1,254 96
Grubbing and clearing			90 00

1,344 96

## Section No. 63.

Excavation	13,900 yards at	9 cents	1,251 00
Grubbing and clearing			42 00

1,293 00

## Section No. 64.

Embankment	12,355 yards at	11 cents	1,359 05
Excavation	19,265	at 10½	2,022 88
Hard pan	2,100	at 26	546 00
Detached rock	580	at 30	174 00
Grubbing and clearing			30 00
			<hr/> 4,131 93

## Section No. 65.

Embankment	5,334 yards at	14 cents	746 76
Excavation	6,922	at 9	568 98
Hard pan	276	at 17	46 92
Detached rock	60	at 37½	22 50
Grubbing and clearing			45 00
			<hr/> 143 78

## Section No. 66.

Excavation	12,418 yards at	10 cts.	1,241 80
Hard pan	750	at 25	187 50
Detached rock	80	at 40	32 00
Grubbing and clearing			225 00
			<hr/> 1686 30

## Section No. 67.

Excavation	5,492 yards at	10 cts.	549 20
Slate rock	2,000	at 20	460 00
Embankment	520	at 12	62 40
Grubbing and clearing			35 00
			<hr/> 1106 60

## Section No. 68.

Excavation	12,835 yards at	9½ cts.	1,251 41
Slate rock	1,120	at 38	425 60
Grubbing and clearing			225 00
			<hr/> 1902 01

## Section No. 69.

Excavation	11,940 yards at	10 cts.	1,194 00
Detached rock	330	at 28 cts.	92 40
Grubbing and clearing			333 00
			<hr/> 1619 40

## Section No. 70.

Excavation	20,820 yards at	10 cts.	2,082 00
Hard pan	522	at 24	77 28
Grubbing and clearing			255 00
			<hr/> 2414 28

## Section No. 71.

Excavation	10,960 yards at	10 cts.	1,096 00
Hard pan	390	at 15	49 50
Grubbing and clearing			45 00
			<hr/> 1190 50



## CANAL REPORT.

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## Section No. 72.

Excavation	7,254 yards at	10 cts.	725 40
Embankment	3,164	at 14	442 96
Hard pan	1,994	at 18	358 92
Grubbing and clearing			55 00
			<hr/> 1582 28

## Section No. 73.

Excavation	8 300 yards at	11½ cts.	975 25
Embankment	1,742	at 10	174 20
Hard pan	920	at 25	230 00
Grubbing and clearing			378 00
			<hr/> 1757 45

Total

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\$ 283,007 33

## No. 4.

*Estimate of the cost of completing the remainder of the North branch Division to Northumberland.*

An estimate exhibiting the amount of work necessary to complete that part of the North branch Division, Pennsylvania canal, which lies between the 73d section and its termination at Northumberland. Also the prices at which a part of it has been let for construction.

Sec. No. 80, contains	Excavation	8,070 at 8½ cts.	\$685 95
	Embankment	2,600 at 10	260 00
	Grubbing	\$45,	45 00
			<hr/> 990 95

Sec. No. 81,	do.	Excavation	8,160 at 8½	
		Embankment	10,742 at 12	
		Grubbing	\$87	— 1,869 64

Sec. No. 82,	do.	Excavation	8,680 at 8½	
		Embankment	1,687 at 12	
		Grubbing	\$350	— 1,281 16

Sec. No. 83,	do.	Excavation	11,382 at 9	
		Embankment	520 at 11	
		Grubbing	\$300	— 1,381 58

Sec. No. 84,	do.	Excavation	12,220 at 8½	
		Embankment	3,460 at 9½	
		Grubbing	\$72	— 1,439 40

Sec. No. 85,	do.	Excavation	7,382 at 8	
		Embankment	9,734 at 10	
		Grubbing	\$40	— 1,604 06

Sec. No. 86,	do.	Excavation	8,745 at 9	
		Embankment	5,840 at 12½	
		Grubbing	\$100	— 1,617 05

## CANAL REPORT.

Sec. No. 87,	contains	Excavation 3,460	at 8		
		Embankment 1,990	at 11		
		Grubbing	\$35	—	580 70
Sec. No. 88,	do	Excavation 500	at 8½		
		Embankment 20,580	at 10	—	2,000 90
Sec. No. 88,	do	Puddling 4,720	at 14½		
		Vertical wall 4,725	at 49½		
		Grubbing	\$125	—	3,160 48
Sec. No. 89,	do	Excavation 3,370	at 8		
		Embankment 20,840	at 15		
		Puddling 4,600	at 20		
		Solid rock 100	at 74		
		Vertical wall 4,475	at 63		
		Grubbing	\$125	—	7,349 85
Sec. No. 90,	do	Excavation 13,948	at 8		
		Embankment			
		Grubbing	\$20	—	1,135 84
Sec. No. 94,	do	Excavation 10,520	at 9		
		Embankment 2,806	at 12		
		Grubbing	\$45	—	1,322 52
Sec. No. 95,	do	Excavation 4,400	at 7½		
		Embankment 20,080	at 11		
		Puddling 4,475	at 18		
		Vertical wall 5,903	at 50		
		Grubbing	\$180	—	5,566 80
Sec. No. 96,	do	Excavation 5,700	at 7½		
		Embankment 28,320	at 10½		
		Puddling 6,600	at 18		
		Solid rock 480	at 50		
		Vertical wall 8,259	at 50		
		Grubbing	\$200	—	9,236 15
Sec. No. 99,	do	Excavation 9,800	at 8		
		Embankment 1,774	at 9		
		Grubbing	\$55	—	998 66
Sec. No. 100,	do	Excavation 8,260	at 8		
		Embankment 3,700	at 10		
		Grubbing	\$45	—	1,075 80
Sec. No. 101,	do	Excavation 8,230	at 9		
		Embankment 8,450	at 12		
		Puddling 1,200	at 16		
		wall 2,265	at 70		
		Grubbing	\$30 00	—	2,852 20
Sec. No. 102,	do	Excavation 8,500	at 9		
		Embankment 1,478	at 10		
		Grubbing	\$30 00	—	942,40

## CANAL REPORT.

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Sec. No. 103, contains	Excavation	9,340	at 7		
	Embankment	4,470	at 11½		
	Grubbing			—	1,467 85
Sec. No. 104, do	Excavation	13,460	at 9		
	Embankment		12½		
	Grubbing		\$246 00—		1,437 40
Sec. No. 105, do	Excavation	10,920	at 8		
	Embankment	2,860	at 10		
	Grubbing		\$30 00—		1,141 60
Sec. No. 106, do	Excavation	10,920	at 7		
	Embankment	5,680	at 10		
	Grubbing		\$20 00—		1,352 40
Sect. No. 107, do	Excavation	13,680	at 8		
	Embankment	19,020	10		
	Grubbing		\$120—		3,116 40
Sect. No 108 do	Excavation	10,850	at 8		
	Embankment	5,740	12		
	Grubbing		\$ 90—		1,646 80
Sect. No 109 do	Excavation	4,238	at 8		
	Embankment	9,550	12		
	Grubbing		\$ 50—		1,535 04
Sect. No 110 do	Excavation	13,000	at 8		
	Embankment	6,480	11		
	Grubbing		\$28		
	Slate rock	400	48		
	Vertical wall	800	47—		2,348 80
Sct. No 111 do	Excavation	1,720	at 7		
	Embankment	21,500	10		
	Puddling	4,800	12½		
	Vertical wall	4,883	45		
	Grubbing		\$120—		5,187 75
Sect. No 121 do	Excavation	11,160	at 8½		
	Embankment		11		
	Grubbing		\$312—		1,260 60
Sect. No 122 do	Excavation	11,496	at 9		
	Embankment		12		
	Grubbing		\$326—		1,360 64
Sect. No 123 do	Excavation	14,200	at 9		
	Embankment	400	11		
	Grubbing		\$ 314—		1,636 64
Sect. No 124 do	Excavation	8,760	at 9½		
	Embankment	5,490	12½		
	Grubbing		\$ 342—		1,860 45
Sect. No 125 do	Excavation	12,140	at 9½		
	Embankment	200	12½		
	Grubbing		\$ 45—		1,223 30

Sect. No 126 contains	Excavation	12,680	at 8	
	Embankment	2,000	15	
	Grubbing		\$ 39—	1,480 20
Sect. No 127 do	Excavation	8,090	at 7½	
	Embankment	4,740	11	
	Grubbing		\$ 25—	1,173 36
Sect. No 128 do	Excavation	7,640	at 8	
	Embankment	8,430	15	
	Grubbing		\$ 20—	1,895 70

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\$ 77,937 50

## LOCKS.

No 4	5 feet lift at	\$149 75	per foot	\$ 748 75
	Paddle gates			160
No 5	10 feet lift at	149 75	do	1497 50
	Paddle gates			160
No 6	10 feet lift at	149 75	do	1497 50
	Paddle gates			160
No 7	10 feet lift at	149 75	do	1497 50
	Paddle gates			160
No 8	7 feet lift at	149 75	do	1048 25
	Paddle gates			160
No 9	7 feet lift at	149 75	do	1048 25
	Paddle gates			160

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Cost of locks

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\$8297 75

## AQUEDUCTS.

One across Fishing creek 182 feet long at	\$10	1820
833 perches masonry	1 50	1949 50
One across Mahoning creek, 60 feet long	6 31	378 60
360 perches masonry	1	360
One across Lodges run, 50 feet long	7 50	375
362 perches masonry	3 50	805
One culvert on section 94, will cost		225

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5113 10

Amount of locks brought down

8297 75

Amount of sections

77,937 50

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Whole amount of work under contract

\$ 91,348 35

*Estimated cost of work on the North Branch Division, Pennsylvania canal, which has not been contracted for.*

Sect. No. 74, contains	Excavation	11,020	at 8	\$ 881 60
	Embankment	2,450	10	245
	Grubbing		\$40	40

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\$ 1,166 00

## CANAL REPORT.

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Sect. No 75 contains	Excavation	31,400	at 12	
	Embankment		12	
	Grubbing		\$ 60—	3028
Sect. No 76 do	Excavation	10,840	at 9	
	Embankment	600	11	
	Grubbing		\$ 45—	1096 60
Sect. No 77 do	Excavation	7690	at 8	
	Embankment	2340	10	
	Grubbing		\$ 45—	894 20
Sect. No 78 do	Excavation	14,300	at 8½	
	Embankment	430	10	
	Grubbing		\$ 45—	1303 50
Sect. No 79 do	Excavation	9502	at 9	
	Embankment	1200	11	
	Grubbing		\$ 45—	1032 18
Sect. No 91 do	Excavation	11,196	at 9	
	Embankment		10	
	Grubbing		\$ 20—	1027 64
Sect. No 92 do	Excavation	14,002	at 9	
	Embankment			
	Grubbing		\$ 176—	1436 18
Sect. No 98 do	Excavation	13,842	at 10	
	Embankment	275	13	
	Grubbing		\$ 830—	1749 95
Sect. No 97 do	Excavation	5780	at 9	
	Embankment	7884	11	
	Grubbing		\$ 100—	1487 44
Sect. No 98 do	Excavation	10,484	at 9	
	Embankment	600	10	
	Grubbing		\$ 260—	1263 56
Sect. No 112 do	Excavation	12,860	at 8	
	Embankment	1,700	12	
	Grubbing		\$ 25—	1257 80
Sect. No 113 do	Excavation	12,600	at 9	
	Embankment	100	at 11	
	Grubbing		10 00—	1156 00
Sect. No 114 do	Excavation	15,094	at 9	
	Embankment		12	
	Grubbing		25 00—	1208 46
Sect. No 115 do	Excavation	10,420	at 10	
	Embankment	1,070	12	
	Grubbing		10 00—	1180 40
Sect. No 116 do	Excavation	18,120	at 12	
	Embankment	460	12	
	Grubbing		25 00—	1655 60

Sect No 117 contains	Excavation	11,541	at 11	
	Embankment	700	11	
	Grubbing		150 00—	1496 51
Sect. No 118 do	Excavation	14,444	at 11	
	Embankment	280	12	
	Grubbing		48 00—	1670 44
Sect. No 119 do	Excavation	14,104	at 10	
	Embankment		10	
	Grubbing		35 00—	1445 40
Sect. No 120 do	Excavation	10,840	at 10	
	Embankment	1,060	12	
	Grubbing		108 00—	1819 20

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28,680 56

Culvert on section No 74 will cost		1 5,00
do do 81		45 00
do do 84		40 00
do do 99		46 00
do do 103		50 00
do do 112		215 00
do do 118		50 00
28 farm bridges at \$ 200 each		5,600 00
12 road do 250		3,000 00

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9, 21 00

Amount of sections brought down 28,680 56

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Whole amount of work, not under contract \$ 37,901 56

### No. 6.

A list of superintendents, engineers, assistant engineers, &c. employed on the North Branch Division of the Pennsylvania canal.

Thomas Woodside, superintendant	3 00 per day
Charles T. Whippo, principal engineer, \$ 2,000	per year
John Bennet, assistant engineer,	4 00 per day
Henry H. Petre do	3 50
Matthew R. Stealy, draftsman	2
Thomas Bennet, assistant do	2
Lord Butler do	2
George Mack do	2
George Shoemaker do	2
Thomas E. Paine, surveyor	2
Francis G. Murray, assistant	1 50
Houghton B. Robison, rodman	1 50

Pennsylvania Canal, since its commencement  
each section and the amount of per centage

PENNSYLVANIA	SQ. YDS.			
to do do				
to do do				
to do do				
to November 15, 1828.				
to October 31, 1828.				
to November 15, 1828.				
to 19th October, 1828				
to 18th September, 1828.				
to 15th November, 1828.				
to 15th November, 1828.				
to November, 1828.				
to 9th October, 1828.				
to 25th August, 1828				

h day of July, 1828, amounts to	21756 13
	2262 00
	<hr/>
	4018 13

mitted.

I. Branch Division Penna. Canal.





James Chamberland	Rodman	\$ 1 50
William Petre	do	1 50
John Chalhoone,	axeman	1
Niles Bentley	do	1
William M'Name	do	1
Stephen R. Clark	do	1
Isaac Welsh	do	1
Ellis Hughes,	clerk	2 50

THOS. WOODSIDE,

*Superintendent. N. B. Division, Penn. canal.**Harrisburg December 9, 1828.***Series 7.****DOCUMENTS RELATING TO THE WEST BRANCH DIVISION.****No. 1.**

*Report of the Survey of a canal line on both sides of the West Branch from Northumberland to Bald Eagle—by F. W. Rawle, engineer.*

*To the Board of Canal Commissioners of Pennsylvania.*

GENTLEMEN,

I have the honor of submitting to you a report, together with plans and estimates, of an explored line, and location of canal in the valley of the West branch of Susquehanna, on the western, and on the eastern side of that river, from Northumberland to the Bald Eagle.

The survey on the western side was commenced at the head of the Susquehanna division, at the blue hill, and continued to a point on the Bald Eagle creek, two miles above the mouth of that stream. A line of canal connecting the Bald Eagle with the river, near Reed's run, was then laid; and the survey on the eastern side was commenced at the last mentioned point, and ended at Northumberland.

The course of the survey will be traced on the two sides, and described in a brief manner, by sections generally corresponding with those in the estimates, which are divisions of distances marked by well known boundaries through the country.

**WESTERN SIDE.**

The passage of a portion of the Blue Hill is effected by the Susquehanna division, in the pool of the Shamokin dam, guarded by a towing path embankment, and wall. For the remaining part of the

distance, which now falls within this survey, the same level, and a similar mode of construction is adopted. From the pool, the level is raised by three locks to the bottom land of dry valley, through which it passes on good ground, with medium cutting, to Turtle Creek, at the commencement of the Vine Hills. Having passed the creek by an aqueduct, the canal is forced into the river in order to pass the bluff rocks of the hills extending to the waters edge, and a heavy wall is required to support the embankment in that distance. Leaving the rocks, the opening of Buffalo Valley is gained, and favourable ground for a canal is found, which continues as far as Buffalo Creek, at Derrstown. At Buffalo creek an aqueduct of 250 feet in length is required, and a considerable embankment is necessary to sustain the level over the bottom lands of that stream. From this point to the hills nearly opposite Milton, 3 miles in distance, the ground is generally favourable, with the exception of the slate sideling at Musser and Wilson's farms.

In passing the hills, the embankment must be guarded by a wall at canal slope.

Leaving this point, the bottom land again opens, and the range of ground being here extensive, two lines were run. That nearest the river being established, it is carried with excavation generally good, as far as White deer mountain, passing in its course the saw mill stream at New Columbia and White Deer creek at Dan Caldwell's mills: the latter of these streams requiring an aqueduct. At White Deer mountain the ground rises at a steep slope from the river, and the level is consequently required to be sustained by high embankment, and sufficient protection wall. At the end of this embankment, White-deer-hole creek falls into the river, and the valley of that name opens. Through this range of level ground which reaches as far as the bluffs at Black run, the excavation is favorable. At the bluffs, and at Penny hill, which falls in very soon afterwards, an embankment and wall is again required, extending nearly to Black Hole-run. The valley called from this run, here commences, and is an opening of considerable extent. A choice of ground again occurring, two surveys were made nearly through its whole length. The line passing nearest to the foot of the hills was adopted, and it affords, without any material exception, good excavation as far as the head of the bottom land at the great turn of the river. Here the Bald Eagle mountain commences, forming the southern boundary of the river valley, as far as the survey was carried, and which, from its base falling so frequently within the line of canal, in that distance, causes the most difficult and expensive part of the line. The part that bears this character most strongly, begins at the point already referred to, and extends without any alteration in appearance, for nearly 5 miles.

Difficulty of procuring on the ground the materials necessary for the construction of embankment, is much to be apprehended; while at the same time, much labor will be required, effectually to preserve the water of the canal on a hill side so strong. The protection wall necessary, does not in the estimate, form a proportionate item of the expenses; the best materials for that construction being

found along the whole length. At the head of this section, it is proposed to construct a feeding dam in the river, to the height of 4 feet, near what is called the "Race ground." From this dam the level is raised, and after passing another mile, partly through a strip of bottom land, and partly along the mountain, the line enters the bottom, beginning opposite to the mouth of Loyalsock, near Porter's house. Through this range the ground is for the most part favourable, but in some places requires some extra excavation, and considerable embankment. The upper end of the bottom rises to a hill, and it is necessary from that point, to carry the canal by wall and embankment, along the margin of the river, by Caldwell's mills. After passing this, and a short distance of easy excavation, the line again encounters the base of the mountain, along which it is carried up to the lower Nippenose bottom. This section of the mountain, offers rather less difficulty than that before mentioned; materials for construction being more convenient. Through the Nippenose bottom, the best line was found, to be through the wet ground, and timber land, in the range of the back farms, and which may be considered as generally favourable, some extra excavation however occurring. This bottom land ceasing, another section of wall and embankment occurs, and continues to the upper Nippenose bottom. Through this land the line was generally similar to that in the lower Nippenose, with the exception of deep cut at the upper end, necessary to avoid a considerable of embankment in the river. This point being passed, the line is thrown upon the steep sideling below Antes' mill, past which, and the Nippenose creek, it is carried principally on such ground, till it once more meets with the Bald Eagle mountain. This section of the mountain continues up to Love's Bottom, and is of considerable length, meeting with some relief however, at Jacob Antes' farm. Through the lower part of Love's bottom, the excavation was at the medium with a good line; but at the high ground at Quigleys', it increases to a considerable depth, which it was preferred to encounter, rather than be again forced to the river. From this cut to the upper end, a good line is generally found. Leaving this range of bottom land which is extensive, the line is carried chiefly along the mountain, with occasional intervention of level strips of sufficient width, up to the mouth of the Bald Eagle creek, and thence along its bank two miles farther, to the head of the survey.

Having arrived at this point, which it was necessary to reach, in order to gain a proper height for the level established, and at the same time a convenient place for the construction of a dam, both for the purpose of feeding the canal, and of affording a sufficient harbor, the first enquiry was the means of forming a connexion with this point and the river.

*Survey across the point from Bald Eagle to the River.*

Examinations were accordingly made, and it was deemed advisable to form this connexion by a cut taken out of the river a short distance above Reed's run, and carried across what is called the point.

in a distance of three quarter's of a mile. A dam in the river was therefore established, at a level with that on the Bald Eagle, and a line of canal connecting them was laid. Advantage being taken of the low ground through Robert Stewart's place, the excavation is kept at a medium until it approaches the river bank, where for a short distance it is deep. By this arrangement it is thought, that on either side of the river valley, it may be determined to carry the canal, the trade of the Bald Eagle country, and that of the West Branch, will equally be accommodated, while at the same time, a most permanent supply of water will be afforded.

### EASTERN SIDE.

Having fixed upon this plan as the most satisfactory for either canal, the survey on the eastern side was begun. With the level of the two dams, the line proceeds downwards, and is carried round the limestone and slate bluffs, near the head, by wall and embankment, thence through the bottom land at Duanstown, and again by the bluffs below, at the end of which it enters an extensive level range, and medium cutting is soon attained. From this point similar excavation is found, until it reaches Chatham's run, where some embankment is required at the crossing of that stream, below Ferguson's mill. From thence it is carried over good ground until it approaches Pine creek, where in order to keep up the level for an aqueduct, some embankment is again necessary. This creek being passed (by aqueduct of 300 feet in length) the line assumes the proper cutting, as far as the sand hills, above Jersey Shore, where, in order to save distance, and to secure a better passage by that town, some extra cutting is encountered. From thence on, no difficulty is met with till Larry's creek is reached; here an aqueduct is required, and a high embankment over the creek bottom, and here commences the most expensive part of the work on this side of the river. This is owing to the necessity of constructing a wall and embankment of extra height and dimensions round the bluffs below the creek, while this expense is increased by the difficulty of procuring good stone on the ground. Material for embankment can however there be had. Leaving the bluffs, and passing through some cutting, the line is carried under favourable circumstances to the lower end of Hughes' farm. From this point down to the mouth of Queenashahoque run, some paving against the sideling will be required, and passing the stream, some excavation will be encountered at the slate bluffs below. The next section carries us over good ground to the town of Newberry at Lycoming creek. The crossing of this creek, and the low grounds adjacent was next to be considered, and it was concluded to keep up the level, and pass by an aqueduct and embankment: by which the interference with the mill power of the stream would be avoided, and a much better line in plan obtained. Some considerations however, relative to the descending trade of that stream may, upon a review of the ground, enter into the decision.

Leaving this point, after some cutting favourable for the embank-

ment, the line pursues a very good course through the second bottom, overcoming the declivity of that ground by two eight foot locks, and thence passes on the northern skirt of Williamsport, where striking on to the sideling of Woodward's run, continuing along this a short distance, and then crossing the public road it gains the alluvial bottom. In order to ascertain which kind of line could be carried through the river streets of the town, consequent on the adoption of another course from Lycoming creek, a second survey was made, and ended at the point referred to. Under any other circumstances, the previous line would be preferable.

The next section carries the canal over very good ground, with proper excavation, until it reaches the bank of Loyalsock creek. The passage of this creek was obviously to be effected by a dam and guard lock, the keeping up of a high level being difficult to accomplish. The line was accordingly carried a short distance along the bank and thence across the creek, accommodating the level of the canal to that of the dam of Burrows' mill. Leaving Loyalsock creek, no variation of any consequence from a desired line is met with, until arriving at the ponds in the neighbourhood of the mill stream, at the Muncy farm, and of Wolf run below. Some embankment is required, and considerable cutting through a clay and slate here occurs.

The crossing of Muncy creek is then effected. An aqueduct and a high embankment for a short distance are necessary. From this point, with medium ground again attained, the line holds its course, passing the town of Pennsborough, to the bluffs above the Muncy hills; after passing which by a deep cut, and some further distance of favorable ground, the Muncy hills are reached. Here the level was dropped by three locks into the pool of a dam, to be erected for a feeder at the Sugar Camp island below. The passage of these hills will therefore be accomplished in the pool, protected by a towing path formed of slate excavation as far as the dam, and thence by a canal secured by wall and embankment.

Entering the land again, which, from the formation here, does not occasion the usual cutting consequent on a depression of the level, a good line of canal is again commenced, and continues along with the various slopes of ground, passing Watson's-town, where a short distance of paving on the river bank will be required, and the Warrior run, with a large culvert and some embankment, until it reaches Milton. At this town it is carried through the back lots, with few interventions of buildings, but passing over the head race of the mill on Limestone run. The next distance passed over is to Chilisquaque creek, and in reaching which, the best ground was found in the neighborhood of the big marsh, any where medium excavation was afforded. The line crosses Chilisquaque with an aqueduct, at a favorable point below Wilson's mill, and from thence holds its course, with gentle sideling and level cutting of little variation, till it reaches the point at the town of Northumberland.

At the point the junction with the North Branch canal is formed. No arrangement was made for the necessary accommodation of a basin, nor for the outlet locks, &c. these works being common to the two canals, will be more properly considered in conjunction with the engineer on the North Branch.

In comparing the surveys thus described, in reference to their estimated cost, it will be seen that the excess of the western over the eastern side, is principally caused by the necessity of constructing the canal along the steep slopes or abrupt sides of the mountains that on the western side so frequently bound the river. The disproportion on the two sides in this respect, is very great. On the western side, however, in almost all instances, the formation of these slopes admitted of a construction generally considered the most economical, on the eastern side, particular circumstances, where such places occurred, required a construction of more expense.

The calculation for the area of the canal, were made upon the usual dimensions now adopted for the Pennsylvania canal—I propose to build the locks with dry walls of rough stone, and planked in the bottom and sides upon timbers secured in a proper manner. The aqueducts to be built with wooden trunks, supported by abutments and piers of rubble stone work laid dry.

Culverts laid in lime mortar.

Respectfully submitted,

F. W. RAWLE,  
Engineer.

Milton, August 16, 1828.

### *Estimate of cost on the western side.*

#### *Section 1.*

From Susquehanna division to the upper end of Blue Hill—length			
1 mile and 196 perches.			
Towing path at Blue Hill—length 1 mile and 126 perches			
—containing 98,000 cubic yards at 25 cts.			\$24,500
Wall on slopes 2 by 21, 1 mile and 126 per-			
ches, containing 12,348 perches, at \$1			12,348
Three locks of 7 feet lift \$27×0 each			8,160
			<hr/>
			45,008

#### *Section 2.*

From Blue Hill to Turtle creek—length 3 miles and 40 perches.			
Excavation, clay loam 59,375 cubic yards at 11 cts.			6531
Two 6 feet culverts at \$300 each			600
One 12 feet do Dry valley run			1,000
Grubbing			600
Bridges—3 farm bridges at \$250 each			750
			<hr/>
			9481

*Section 3.*

From Turtle creek to the head of Vine Hills—length 1 mile and 160 perches.

Aqueduct at creek	\$2,500
Excavation, clay 44,263 cubic yards at 11	4,869
Wall at 2 inch batter, 7 by 22, length 144 lineal perches, 14,636 cubic perches, at \$1	14,636
Embankment, 144 lineal perches, 40,480 yards, at 15 cents	6,072
One lock 8 feet lift	2,870
Grubbing	200

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 31,147
*Section 4.*

From Vine Hills to Buffalo creek—length 1 mile and 280 perches.

Excavation, clay, 33,250 cubic yards, at 10	3,325
Embankment 11,953	13 1,554
One 8 feet culvert	800
Grubbing	50

Bridges at Derrstown—1 public road at \$800,	
2 for streets \$350 each	1,500
Bridges for farms—4 bridges at 250	1,000

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 8229
*Section 5.*

From Buffalo creek to hills opposite Milton—length 3 miles and 80 perches.

Aqueduct at creek, 250 feet long	\$6900
Embankment 72,452 cubic yards at 12	8694
Excavation sideling slate 39,893	15 5984
do clay 53,641	10 5364
do rock 3,100	50 1550

Slope wall 2 by 28, length 80 lineal perches, 2956 perches	50 1478
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Two 4 feet culverts at \$250 each	500
Grubbing	180

Bridges—5 farm bridges at \$250 each, 1 public road \$800	2050
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 32,620
*Section 6.*

From the hills to White Deer mountain—length 5 miles and 228 perches.

Excavation, loam, 108,537 cubic yards at 11	\$11,939
One lock 7 feet lift	2,720
Aqueduct at White Deer creek	2,160
One 6 feet culvert	350
One 10 feet do	1,500
Embankment, 15,375 cubic yards at 13	1,998
Grubbing	500

Bridges—7 farm bridges at \$250 each, 1 public road \$800	2,550
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 23,777

## CANAL REPORT.

## Section 7.

From White Deer mountain to Penny Hill—length 4 miles and 24 perches.

Embankment at mountain, length 230 perches,		
70,278 cubic yards at 15	10,541	
Slope wall at mountain, length 230 perches,		
8,506 cubic yards at \$1	8,500	
Aqueduct at White Deer hole creek	2,175	
Excavation, loam, 61,503 cubic yards at 10	6,150	
One lock 7 feet lift	2,720	
Embankment at Penny Hill, length 1 mile 100		
perches, 128,333 cubic yards at 15	19,250	
Slope wall at Penny Hill, length 1 mile 100		
perches, 15,523 perches at \$1	15,523	
Excavation, slate clay, 17,555 cubic yards at 12	2,082	
One 4 feet culvert	250	
One 16 feet do at Black run	1,973	
Embankment at do 8000 cubic yards at 13	1,040	
Grubbing	600	
Bridges—2 farm bridges, \$250 each, 1 public		
road \$800	1,300	
	<hr/>	72,104

## Section 8.

Through Black Hole valley to Bald Eagle mountain—length 7 miles 160 perches.

Excavation, loam, 199,470 yards at 10 cents	19,947	
One lock 7 feet lift	2,720	
Two do 8 do at \$ 2870	5,740	
One 6 feet culvert	350	
Grubbing	1,600	
Bridges—8 farm bridges at 250 each, 1 public		
road 800	2,800	
	<hr/>	35,157

## Section 9.

Bald Eagle mountain—length 4 miles 240 perches.

Embankment	464,442 yards at 35 cents	162,554	
Slope wall	56,178 perches 75	42,134	
Puddling in bottom			
and on berm side	105,598 yards 67	39,599	
Excavation	23,466 20	4,693	
Dam at race ground		4,000	
Guard lock		3,750	
Grubbing		1,500	
		<hr/>	258,250



# CANAL REPORT.

## Section No 10.

Bald Eagle mountain to Porter's bottom—length 1 mile			
Excavation, gravel & clay	12,208 yards at 12	1,465	
do clay	4,155	11	457
Guard bank	9,680	12	1,164
Embankment, 160 perches			
in length	48,888	25	12,222
Slope wall 160 do	5,918 perches	75	4,434
Two locks 8 feet lift	\$ 2,870		5,740
Grubbing			250

23,721

## Section 11.

Through Porter's bottom—length 4 miles 60 perches.			
One lock 8 feet lift			2,870
Excavation, loam	64,484 yards at 10 cents	6,448	
Embankment	65,706	15	9,856
Excavation, gravel and clay	43,400	13	5,642
One culvert 20 feet chord at Hagerman's run			2,100
One 4 feet culvert			275
Grubbing			450
Bridges—6 farm bridges at \$250 each, 1 public road at 800			2,300

29,941

## Section 12

From Porter's bottom to mountain above Caldwell's mill—length 1 mile 160 perches.			
Excavation, clay	23,863 yards at 11 cents	2,625	
Embankment 260 perches			
in length	79,443	20	15,888
Slope wall 260	9,608 per. \$1 25		12,011
1.10 feet culvert			1,200
Grubbing			200
Bridges—2 farm bridges at \$ 250			500

32,424

## Section 13.

Bald Eagle mountain—Length 2 miles and 50 perches.			
Embankment	210,831 yards at 25 cts	52,707	
Slope wall	25,502 per	80	20,401
Grubbing			500

## Section 14.

Through lower Nippenose bottom—Length 4 miles 88 perches.			
Excavation, clay	68,323 yards at 11 cts	7,515	
do. do. & gravel	52,702	12	6,324
Embankment	10,555	15	1,583
One lock 8 feet lift			2,870
One 4 feet culvert			275
Grubbing			750
Bridges—6 farm bridges at \$250 each—1 public road \$800			2,300

21,617

## CANAL REPORT.

## Section 15.

Bald Eagle mountain—Length 1 mile 240 perches.

Embankment	171,109 yards at 30 cts	51,332	
Slope wall	20,697 perches 80	16,557	
Grubbing		450	
			<hr/> 68,339

## Section 16.

Through Upper Nippenose bottom—Length 3 miles 35 perches.

Excavation, clay	108,500 yards at 12 cts	13,020	
do. deep cutting	74,348 20	14,869	
One lock 8 feet lift		2,870	
Grubbing		1,300	
Bridges—6 farm bridges at \$250 each—2 public road \$800 each		3,100	
			<hr/> 35,159

## Section 17.

From Upper Nippenose to Love's bottom—Length 4 miles 160 perches.

Embankment 240 perches in length	73,332 yards at 15 cts	10,999	
Slope wall 240	8,870 per. \$1	8,870	
Excavation, clay & gravel	37,975 yds. 12	4,557	
1 culvert 20 feet chord at Nippenose creek		2,800	
Embankment at culvert	19,799 13	2,573	
do. at mountain 2 m. 230 perches	265,830 30	79,749	
Slope wall 2 m. 230 p.	32,154 per. 80	25,723	
Grubbing		750	
Bridges—1 farm bridge at Jacob Antes'		250	
			<hr/> 136,271

## Section 18.

Through Love's bottom—Length 6 miles 30 perches.

Excavation, deep cut at Quingley's	122,027 yards at 20 cts	24,405	
do. clay	86,800 12	10,416	
do. loam	63,535 10	6,353	
1 lock 8 feet lift		2,870	
One 4 feet culvert		275	
Grubbing		850	
Bridges—10 farm bridges 250, 2 public roads 800		4,100	
			<hr/> 49,269

*Section 19.*

From Love's bottom to head of survey on west side—Length 2 miles 294 perches.

Embankment 160 perches			
in length .	48,888 yards at 25 cts	12,222	
Slope wall 160	5,913	80	4,730
Embankment 1 mile 80 per.			
on B. E. creek	86,044	20	17,208
Slope wall 1 m. 80 per.	11,616	80	9,292
1 6 feet lock			2,620
Excavation, clay	57,736	12	6,088
1 guard lock			2,800
Grubbing			450
			<hr/> 55,410

*Section 20.*

From head of survey on west side across the point to the river—Length 240 perches.

Dam at Bald Eagle creek		1,380	
Excavation, sandy loam 13,298 yards at 9 cts		1,256	
do. cutting 23,949	15	3,591	
2 guard locks 2,500 each		5,000	
Dam at Susquehanna		9,320	
Bridges—2 public roads at 800 each		1,600	
			<hr/> 22,147
Total distance 66 miles 132 perches.		Total \$	1,063,611

*Estimate of cost on the eastern side.**Section No. 1.*

From Bald Eagle to the river—length 240 perches,		
Dam at Bald Eagle creek,	\$1,380	
Excavation, sandy loam, 13,298 yds at 9	1,256	
do cutting, 23,949 yds at 15	3,591	
Two guard locks \$2,500 each	5,000	
Dam at Susquehanna,	9,320	
Bridges, two public road at \$800	1,600	
		<hr/> 22,147

*Section No. 2.*

From the river dam to Dunnstown—length 215 perches.

Guard lock,		\$3,000	
Embankment,	46,247 yds at 20	9,249	
Wall at two inches batter, 7 feet			
by 22 high,	21,849 pr. \$1 25	27,311	
Grubbing,		150	
		<hr/> 39,710	

## CANAL REPORT.

## Section 3.

From Dunnstown to end of Bluff rocks—length 280 perches.				
Excavation cutting,	37,155 yds at 12	\$4,458		
Embankment, 90 pr. in length	19,359	20	3,871	
Wall at 2 inch batter, 90 per.	9,147	\$1 25	11,433	
Grubbing,			50	
Bridges, two farm bridges, \$250 each,			500	
				20,312

## Section 4.

From Bluff rocks to Ferguson's mills—length 2 miles 280 per.				
Excavation, clay,	72,618 yds at 11	\$7,988		
Embankment at Chatham's run	26,693	13	3,470	
Two culverts 10 ft. chord	\$1,200 each,		2,400	
Grubbing,			200	
Bridges, five farm bridges \$250 each,				
1 public road \$800,			2,050	
				16,108

## Section 5.

From Ferguson's mills to Pine creek—length 4 miles 280 perches.				
Excavation loam	119,682	10	11,968	
Embankment at Pine creek	29,956	13	3,894	
Aqueduct do 300 feet in length,			7,550	
One 4 feet culvert,			275	
Grubbing,			500	
Bridges, 8 farm bridges \$250 each,				
one public road \$800,			2,800	
				26,987

## Section 6.

From Pine creek to lower end of Jerseyshore—length 3 miles.				
Excavation loam,	21,700 yds at 11	\$2,387		
do cutting,	47,862	15	7,179	
do sandy loam	45,172	9	4,065	
1 lock 7 feet lift,			2,720	
1 four feet culvert,			275	
Grubbing,			200	
Bridges, 8 farm and private bridges \$250 each,				
two public road \$800,			3,600	
				20,426

## Section 7.

From Jerseyshore to upper side of Larry's creek—length 1 mile 80 perches				
Excavation slate, clay,	\$3,245 yds at 12	\$3,987		
1 four feet culvert,			275	
Grubbing,			300	
Bridges, 2 farm bridges \$250, one public road \$800,			1,300	
				5,862

*Section 8.*

From Larry's creek to lower end of Bluff's—length 2 miles and 20 perches.

Embankment at creek,	84,342 yds at 15	\$12,651	
Aqueduct,		3,425	
One lock 8 feet lift,		2,870	
Embankment at Bluffs, 1 mile,			
210 perches,	161,942	20	32,388
Wall at two inch batter, 1 mile			
210 pr. 8 feet by 25,	pr. 69,960	\$1 10	76,956
Grubbing,			50
			<hr/> 128,340

*Section 9.*

From the Bluffs to Hughes' farm—length 3 miles.

Excavation, cutting,	86,735 yds at 15	\$13,010	
do loam,	40,936	10	4,093
One culvert 10 feet chord,			850
One do 4 feet do			275
Grubbing,			100
Bridges, 6 farm bridges \$250 each,			1,500
			<hr/> 19,828

*Section 10.*

From Hughes' farm to Stewart's place—length 1 mile 200 perches.

Excavation clay,	33,623 yds at 12	\$4,034	
do cutting,	18,260	20	3,652
Paving on sidling 130 perches			
in length,	pr. 4,803	\$1	4,803
One culvert 12 feet span,			1,200
Two do 4 feet do,			550
Grubbing,			50
			<hr/> 14,289

*Section 11.*

From Stewart's to Newberry—length 3 miles 300 perches.

Excavation loam,	104,721 yds at 10	\$10,472	
One 4 feet culvert,		275	
Grubbing,		600	
Bridges, 8 farm bridges \$250 each, one public			
road \$800,			2,800
			<hr/> 14,147

## CANAL REPORT.

## Section 12.

From Newberry to Williamsport—length 3 miles,

Embankment at Lycoming			
creek,	71,091 yds at 15	\$10,663	
Aqueduct do		7,300	
Excavation cutting,	71,793	11	7,897
do loam,	42,348	10	4,234
Two locks 8 feet lift,	\$2,870		5,740
Two 4 feet culverts,			550
Grubbing,			6 0
Bridges, 5 farm bridges \$250 each, 2 public			
road \$800 each,		2,850	
			<hr/> 39,834

## Section 13.

From Williamsport to Loyalsock creek—length 3 miles.

Excavation loam,	73,139 yds at 10	\$7,313	
Embankment at Miller's saw-			
mill run,	16,426	12	1,971
One 6 feet culvert,			350
One 8 feet do			650
Grubbing,			200
Bridges, 4 farm bridges \$250 each,		1,000	
			<hr/> 11,484

## Section 14.

From Loyalsock to Hall's upper farm—length 4 miles,

One lock 6 feet lift,			\$2,6600
Dam in creek,			1,200
Guard lock,			1,900
Excavation clay,	17,355 yds at 11		1,909
do do	95,452	10	9,545
Embankment on island,	8,604	10	860
do in the gut,	9,777	13	1,271
One culvert 6 feet chord,			400
Grubbing,			950
Bridges, 4 farm bridges \$250 each,		1,000	
			<hr/> 21,695

## Section 15.

From Hall's upper farm to Kleckner's ferry—length 3 miles, 60 perches.

Excavation, cutting,	39,526 yds at 12	\$4,743	
do loam,	54,854	10	5,485
Embankment,	26,595	13	3,457
do	8,213	12	985
One lock 8 feet lift			2,870
One culvert 4 feet chord,			250
One do 8 feet do			1,000
Grubbing,			650
Bridges, 5 farm bridges \$250 each,		1,250	
			<hr/> 20 690

## Section 16

From Kleckner's ferry to end of Muncy creek embankment—  
2 miles 80 perches

Excavation, deep cut	94,518 yards at 25 cts	23,629	
do do	28,355	23	6,521
Embankment	46,896	15	7,034
Excavation, clay	30,370	12	3,644
One lock, 7 feet lift			2,720
Aqueduct at Muncy creek			2,650
One lock 8 feet lift			2,370
One culvert 6 feet chord			450
Grubbing			600
Bridges—2 farm bridges at \$ 250 each			500
			<hr/> 50,618

## Section 17.

From Muncy creek embankment to Muncy hills—length 3 miles  
200 perches.

Excavation, clay	99,790 yards at 11 cts	10,976	
do deep cut, slate			
and clay	126,134	25	31,533
Three locks, 7 feet lift	at \$ 2,720 each	8,160	
Grubbing			800
Bridges—Three farm bridges, and 1 P. one public road at \$ 800			1,550
			<hr/> 53,019

## Section 18.

Round the Muncy hills—length 1 mile 300 perches.

Towing path embankment			
1 mile and 50 perches	110,227 yards at 25 cts	27,555	
Wall 2 inch batter 7 by 22			
250 perches	27,949 perches \$1 10	30,744	
Embankment	250 pr. 53,776 yds at 20	10,755	
Dam at Sugar Camp island		10,290	
Guard lock		3,750	
Grubbing		300	
			<hr/> 83,394

## Section 19.

From Muncy hills to Peter Fogleman's—length 2 miles 100 perches

Excavation, cutting	105,110 yards at 12	12,613	
Paving against siding			
35 perches in length	1,292 pr \$ 1	1,292	
Excavation, loam	28,258 yards 10 cts	2,825	
Grubbing		200	
Bridges—3 farm bridges at \$250 each, 1 public road \$800			1,550
			<hr/> 18,480

## Section 20.

From Fogleman's to Warrior Run—length 4 miles 280 perches.

Excavation, loam 90,344 yards at 10 cts 9,034

do clay 36,666 12 4,399

Embankment at culvert

at Delaware Run 12,222 12 1,466

One culvert 8 feet chord do 900

Paving on sideling 731 pr. 80 584

Grubbing 650

Bridges—8 farm bridges at \$ 250 each, 1 public  
road at \$800 2,800

19,833

## Section 21

From Warrior Run to Milton—length 4 miles 160 perches.

Embankment at Warrior

Run 24,445 yds. at 12 cts 2,933

1 Ten feet culvert 1,140

1 Lock 6 feet lift 2,660

Excavation clay 147,757 11 16,326

1 6 feet culvert 400

One culvert of 12 feet chord

at Limestone run 1,500

Grubbing 600

Bridges—8 farm bridges at \$250, 2 street bridges at \$350 each, and 2 public road at \$800 4,300

39,795

## Section 22.

From Milton to Wilson's mill at Chilisquaque—length 5 miles  
290 perches.

Excavation, loam 127,016 yards at 10 cts 12,704

Embankment at creek 11,990 12 1,438

Aqueduct at Chilisquaque creek 2,550

Two locks 6 feet lift \$2660 each 5,320

One 4 feet culvert 250

Grubbing 1,250

Bridges—8 farm bridges at \$250 each, 1 public  
road at 800 2,800

26,312

## Section 23.

From Wilson's mill to Northumberland—length 4 miles 240  
perches.

Excavation, slate and

clay 26,332 yards at 15 cts 3,904

do sandy loam 106,384 10 10,638

One lock 8 feet lift 2,870

Grubbing 375

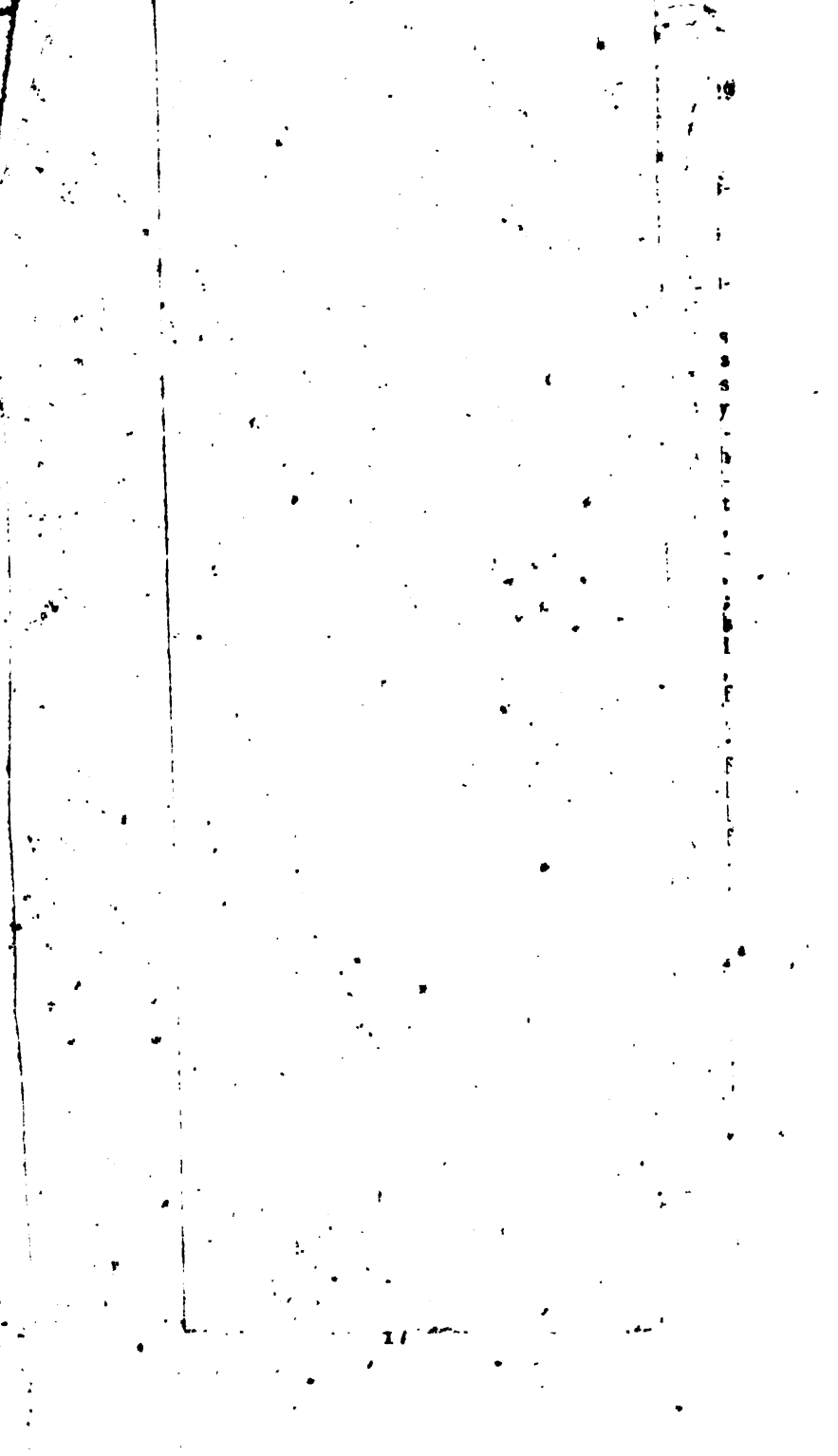
Bridges—9 farm bridges at \$ 250 each 2,250

20,037

Total distance 68 miles 85 perches.

Total \$ 723,311





123

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## No. 2.

*Report of A. M' Reynolds, superintendent of the West Branch Division, with documents A. B. C. D. E. and F. annexed thereto:*

*To the Canal Commissioners of Pennsylvania:*

The superintendent of the West Branch division of the Pennsylvania canal, respectfully submits the following report, viz:

That after having given thirty days notice in the public papers as the law requires, forty-six sections of the twenty-three miles, as directed to be located, the same having been divided into sections of about half a mile each, were put under contract on the first day of October last, (see statement hereunto annexed, marked A. exhibiting the names of the contractors and the prices at which each section is contracted for.) (See statement hereunto annexed, marked B. exhibiting the names of the contractors and the prices at which the dam at Sugar camp island, guard lock at Muncy hills, and locks No. 1, 2, 3, 4, 5 and 6, the aqueduct across Chillisquaque creek, the culverts on sections No. 12, 14, 17, 21, 25, 29, 30, and 31; and bridges on sections No. 6, 12, 25, 32, and 36 public; and farm bridges on sections 6, 13, 14, 17, 23, 33, 28, 29, 30, 31, 35, 37, 38, 39, 40, 41, 42, 43, 45, 7, 9, 10, 16, 20, 21, 24 and 27, is contracted for. All the contractors have commenced work, and it is confidently expected, that the excavation on the whole of the sections let will be in a good state of forwardness this fall. Statement marked C, showing the organization of the engineer corps while laying the explored line on the east and west side of the river from Northumberland to Bald Eagle. Statement marked D, showing the present organization of the engineer corps on said division! And statement marked E, showing the probable cost of the whole work on said twenty three miles to be done, as per statement marked B. and C. made by Francis W. Rawle, Esq. the engineer on the line.

All of which is respectfully submitted.

ANDREW M'REYNOLDS, *Supr.*

## C.

*List of persons employed in the engineer department on the West Branch Division Pennsylvania Canal, while laying the explored line on the east and west side of the river from Northumberland to Bald Eagle.*

Francis W. Rawle, engineer, \$ 2,000 per annum.	
William Rodrigue, assistant engineer, from April 26 to June 13, 49 days, at \$ 2 75 per day,	\$ 134 75
Robert Faries, assistant engineer, from April 23, to June 13, 50 days, at \$ 2 75 per day.	137 50
William Wilson, surveyor, from April 24 to June 9, 47 days, at \$ 3 per day,	141

Joseph M. Nesbit, target man, from April 28 to June 13, 47 days at \$1 50 per day,	70 50
George Reifanyder, target man, from April 30 to June 10, 42 days, at \$1 50 per day,	63
William R. Shoemaker, assistant target man, from April 30 to June 13, 45 days, at \$1 per day,	45
Paul Geddis, chain carrier, from April 28 to June 13, 47 days, at \$1 per day,	47
Joseph Green, chain carrier, from April 28 to June 13, 47 days, at \$1 per day,	47 $\frac{1}{2}$
William Strine, axeman, from April 28 to June 13, 47 days, at \$1 per day,	47
Jacob Wheeland, axeman, from April 29 to June 10, 43 days, at \$1 per day,	43
William M'Clintock, baggage wagon, from April 24 to June 7, 45 days, at \$2 25 per day,	101 25

## D.

*List of persons now employed in the engineer department on the  
West Branch Division Pennsylvania Canal.*

Francis W. Rawle, engineer, from May 1, at \$2000 per annum.	
William Rodrigue, assistant engineer, from June 14 to November 20, 160 days, at \$2 75 per day,	\$ 440
Robert Faries, assistant engineer, from June 14 to Nov. 20, 160 days, at \$2 75 per day,	440
Joseph M. Nesbit, target man, from June 14 to November 20, 160 days at \$1 50 per day,	240
William R. Shoemaker, target man, from June 14 to November 20, 160 days, at \$1 50 per day,	240
* George S. Armstrong, assistant target man from Septem- ber 3 to November 20, 79 days, at \$1 50 per day,	118 50
Paul Geddis, assistant target man, from August 25 to November 20, 88 days at \$1 per day,	88
William Strine, axeman, from August 25 to November 20, 88 days, at \$1 per day,	88
John H. Parks, axeman, from August 25 to November 20, 88 days at \$1 per day,	88
	<hr/> 2,619 50
William Laird, clerk in canal office from September 25th to Nov. 20th, 57 days.	

ANDREW M'REYNOLDS, *Super.*

*West Branch canal office, Milton, Nov. 20, 1828.*

## E.

The following is an estimate of the probable cost of constructing that portion of the West Branch division of the Pennsylvania canal, now under contract, from Muncy Hills to Northumberland, 23 miles in length, made from the contracted prices, by Francis W. Rawle, Esq. engineer on the line, viz:

Dam, guard lock and excavation, wall and embankment from Muncy Hills to section No. 8,	875,361
Excavation and embankment from section No. 8 to the end of the division,	45,465
Locks including embankment,	20,000
Aqueducts and culverts,	11,888
Bridges	12,358
Waste-wiers	1,200
Grubbing	4,958
	<hr/>
	171,130

ANDREW M'REYNOLDS,  
*Superintendent.*

## F.

Shewing the present organization of the engineer corps on the West Branch division of the Pennsylvania canal.

Engineer	Francis W. Rawle.
Assistant engineers	William Rodrigue, Robert Faries.
Target men	Joseph M. Nesbit, William R. Shoemaker.
Assistant	Paul Geddis, William Morris.
Axe men	William Steine, John H. Parks.

ANDREW M'REYNOLDS,  
*Superintendent.*

WM. LAIRD, *Clerk.*

*West Branch Canal Office,  
Milton, November 20th, 1828.*

**Series 8.****DOCUMENTS RELATING TO SURVEYS.****No. 1.**

*Report and estimate in the survey of the Pennsylvania Rail-way, from Columbia to the Gap, by John Wilson, Engineer.*

To the board of canal commissioners of the state of Pennsylvania,  
GENTLEMEN,

Agreeably to instructions received from the secretary of the board in April last, I repaired to Columbia, in Lancaster county, for the purpose of locating the Pennsylvania rail way, and have now the honour of submitting the following report, with plans and estimates of the location and formation of twenty-nine miles of the road.

As the termination of the twenty-ninth mile, from the head of the inclined plane at Columbia, (see position A, on the accompanying map,) approaches near to the deep excavation, in the Gap of Mine ridge, and having in my last year's report, designated the summit at Henderson's as the point separating the eastern from the western divisions of the rail-way, I shall therefore, in the present report, confine myself solely to the leading facts connected with the western division, and the location of its route, as delineated on the accompanying map.

Preparatory to the commencement of the location of the rail-way, various examinations were made and experimental lines traced; and having considered it important to the line, that the inclined plane and steam power should be located near its place of beginning, it was found practicable to effect that object from the position marked C, (see map) near the east end of the Columbia bridge, and which may be designated as the place best suited for the termination of the Pennsylvania canal. But as the extension of the line through the town of Columbia, along the margin of the Susquehanna river, to a point (marked B) at the southern extremity of the town, offered a more favourable position, from whence the engine plane could be traced, I therefore commenced at that point the location of the plane, and determined its length to be about six hundred and sixty-yards, and height ninety feet.

As it was found impracticable at the commencement of the survey to trace the precise line on the margin of the river, on account of the accumulation of lumber and other matter then deposited on its bank, the estimate of the cost of levelling the plane, and this portion of the line, which will not be expensive, is deferred to another period.

Those inhabitants of Columbia, through whose property the line must pass, have by a written document, which was handed to the secretary of the board, released the state from any damages for buildings or land.

From the head of the plane the line is traced to the position north of Mount Pleasant village, and to that point on Little Conestoga creek, both referred to in my former report.

From thence through the north-east corner of Lancaster, it reaches Big Conestoga creek, east of Mrs. Hall's residence.

In locating the road in the neighbourhood of Lancaster application was made to me by a committee of citizens appointed by the select and common councils of the city, to trace the line marked E F, (see map,) which they deemed more advantageous to the interests of that community. It is obvious however, that on inspection of the map, this line would be injurious to the main route; and the excess of cost of levelling it to the graduation, is about three thousand dollars. A branch line could be constructed for this amount, which would be beneficial both to the main rail-way and Lancaster, by making the latter more accessible as a place of deposit.

There were three distinct lines traced to Big Conestoga creek; one on the north margin of Hardwick run, to the crossing place at Mrs. Hall's; a second on the south side of the same run to Demuth's mill, and a middle line leading across the run, which was finally considered as best adapted for the rail-way.

The line crossing at Demuth's, could not be united with any graduation within the assumed limit to Mill creek, it was therefore abandoned.

A line was traced for six miles from the east end of the contemplated bridge at Mill creek, pursuing a more northwardly direction than the explored line of last year; my object was to reach a position on Pequea creek near Eckert's mill, but the application of the different grades was found to render a location on this route very expensive, I therefore did not hesitate to withdraw the party and return to our position at Mill creek, from which we located a line as far as Weaver's farm on the old route, thence it crossed Brisbane's run, and Pequea creek, and was conducted to the position at Eshleman's dam, referred to in the preliminary report of last December. Continuing the location from the latter point, and following the northern margin of Eshleman's and London canal runs, the line enters at the eastern end of Williamstown, on the Philadelphia and Lancaster turnpike, and thence it is conducted to our former position at Aby's, from which to the side hill of the Mine ridge, the line is traced with a radius of moderate curvature. Continuing the graduation along the sloping ground of the ridge, the limit of the present estimate is determined at the picket 354, on the profile No. 29, to which I refer. From the latter point the location has been extended through the Gap of Mine ridge, and has advanced to that position beyond Cloud's mill dam, in the valley of Chester county, which terminated the second section in the eastern division of last year's report.

Reverting to the position at Aby's, from which we graduated a line last year, ascending east at 291.04 feet to the mill, it was found in the present survey, that in order to trace the line to Mine ridge, with a radius of easy curvature, the distance would be considerably diminished, I therefore increased the grade to 31 feet and located the road to the Gap, with a cut at its summit of 35 feet.

It is my intention however, without altering the present location, to diminish the grade of the 28th and 29th miles to the former number of 29.04; and this is easily effected, by commencing this rate of graduation about a mile further back on the line.

In concluding my remarks upon the location of this division of the Pennsylvania rail-road, I will observe that in directing the different explorations, with the view of selecting the proper line for the road, the diminution of distance, so as not to extend beyond the limit of a reasonable expense, was an object of primary consideration, and which was accomplished to a greater extent than expected.

The remark in one of the concluding clauses of last year's report, that embankments and cuttings were avoided, the expense of which might have been equivalent to the increased length of railway, has been verified by the present location; for the difference in distance is four miles and  $33\frac{1}{2}$  chains. As regards the comparative expense, I shall take occasion to refer to that in the sequel of this report.

The flexures in the line of road, and which were unavoidable, are of moderate curvature. The radii of their curvatures vary from 631 to 1891 feet; in one instance only, and that is immediately at the end of the level platform on the engine plane at Columbia, the radius of curvature is about 350 feet, but this can be easily increased on the opening of the road, should it be deemed necessary.

There is another route which I shall now bring before the view of the board. It commences west from Captain Slaymaker's, at the position marked G on the map; and is traced after crossing London run, on its southern margin to the point H; it is then lifted to the side hill of Mine Ridge, by an inclined plane of about 75 feet; from this it is traced to the Gap, which will require a depression at its summit of only five feet; from the gap it has progressed in its extension along the south side hill of Mine Ridge, five miles, and is intended to be conducted (should the ground be favorable) to the Chester valley near Coatsville, by another plane and engine. The object of this investigation is to ascertain whether we cannot so shorten the distance between the Gap and Philadelphia, and so far diminish the expense of construction, that the interest arising upon the difference of expense between this route and the lower level located beyond Cloud's, may be an equivalent to that of maintaining and keeping in repair the two stationary engines.

The survey involving this question will be completed in the course of another week.

Applications have been made to me at various times during the present survey, to make examinations of routes, which were considered by those having an interest in them, as presenting more advantageous ground for the location of the Pennsylvania rail way, than the explored line reported upon last year. I have endeavored to give all the attention to them that time and the nature of my duties would permit.



The routes proposed by the citizens of Chester county, residing in Honeybrook township, were examined.

From the summit above Irwin's mill, on one of the head branches of Pequea creek, following the valley leading to West Brandywine at Beaver dam, thence to the summit dividing West Brandywine from Beaver creek, which is tributary to East Brandywine, the surface of the country indicates favorably for the location of a road; but the height of the ridge which divides the waters of Pequea and West Brandywine, cannot be overcome without the aid of machinery: neither can this summit be attained from Lancaster without rendering the line of graduation both circuitous and expensive. Another route was examined which leads from the summit near the Compass tavern; but the same difficulties presented themselves here as in the former.

The elevation of the summits between the Gap at Henderson's and the Welsh mountain, and to which my attention had been directed, vary from 186 to 250 feet above the position of the ridge through which we pass into Chester valley.

Such other routes as have been examined, and the discussion of which have a relation to the eastern division of the railway, I shall defer until a future period.

The drawings illustrative of the location now submitted, are 1st, a general map upon a scale of four miles to the inch, exhibiting the country through which the line is traced—2d, 29 sectional maps of a mile each, and upon a scale of 16 inches to a mile; also 29 profiles upon the same horizontal scale, but 40 feet vertical to an inch; these should have been attached to the sectional maps, but the latter were not finished in time—3d, 5 drawings, showing the elevations and plans of the bridges; the references upon which sufficiently explain their various parts.

## CANAL REPORT.

## GRADUATION TABLE.

Chains.	Ascending rate per mile.	Descending rate per mile.
184.44	26.00	
15.46		6.30
30.52	23.	
103.08	27.50	
21.01	level	
47.87		27.50
43.		16.75
254.11		27.50
23.95	25.	
19.	20.	
11.50		20.
69.	25.	
39.		20.
118.15		27.50
22.59	level	
21.83	3.80	
187.	27.50	
29.		20.
8.		25.
4.	level	
9.		15.
3.		10.
11.		3.
6.		10.
10.	26.	
13.		20.
5.		10.
94.32		27.50
7.50	level	
162.	27.50	
18.	10.	
32.	level	
11.	20.	
23.		10.
15.	level	
75.90		27.50
16.42		18.
47.	27.50	
18.		14.
13.60	level	
*278.50	27.50	
*190.25	31.	

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 2320.00 29 miles.

\*Intended to be altered to 178.50—27.50 290.25—29.80

## ESTIMATE.

*Mile 1st*, Passes over ground very favourable for the road. It will be chiefly levelled from the matter thrown out of the side ditches.

Excavation on 6.22 chains—mean depth 3.8 feet, 1715 cubic yards, at 7 cents per yard,	120 03
Embankment on 16.40 chains—mean depth $3\frac{1}{2}$ feet, 2706 cubic yards at 10 cents	270 60
Filling at Pike 185 cubic yards at 7 cents	12 95
Excavation on 10 chains—mean depth 1.3 ft, 913 cubic yards at 7 cents	63 91
Double drain in 47.40 chains, 466 cubic yards at 6 cts	27 96
One under-drain at 18 dollars	18
	<hr/>
	\$513 47

*Mile 2d*, On gentle and sloping ground—the line crosses Forrey's meadow—at the 12th picket there is a narrow strip of woods. The grubbing is not estimated, as the value of the trees will be equivalent for this item, on every part of the line to the Gap of Mine ridge.

Excavation on 21.7 chains—average depth 3.1 feet 4643 cubic yards at 8 cents	371 44
Embankment on 20 chains—average depth 4.7 feet, 6366 cubic yards at 12 cents	763 92
Excavation on 8.58 chains—average depth 5.2 feet, 3335 cubic yards at 8 cents	266 80
Double drain on 27 chains—267 cubic yards at 6 cents	16 02
Two bridges of 12 feet in length at \$162,40 and \$76,40	238 80
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	\$1,656 98

*Mile 3d*, Is located in open fields, excavation easy, soil, loam and clay.

Excavation on 16.90 chains, average depth 3.9 feet, 4872 cubic yards at 8 cents	389 76
Excavation on 15.25 ch av dep 4.6 ft 5328 c yds at 8 cts	426 24
Embankment at Gerber's run on 7.75 chains, average dep. 55 feet, 2876 cubic yards at 12 cents	345 12
Embankment on 7.32 chains, 483 cubic yards at 7 cts	33 81
Cutting Sherrick's ridge 19.45 chains, average depth 4.1 feet, 5908 cubic yards at 8 cts	472 64
Double drain on .5 chains, 50 cubic yards at 6 cts	3 00
Bridge at Gerber's, 12 feet	222 40
	<hr/>
	\$1,692 97

*Mile 4th*, Passes over gentle side-way ground—crosses two meadows which must be bridged, and enters the cutting at the summit north of Mount Pleasant. Soil, loam, clay and clay slate.

Excavation on .58 ch, 110 cubic yards at 6 cents	6 60
Embankment at Musser's run 11 chains, average depth 5.9 feet, 4443 cubic yards at 12 cents	533 16
Excavation on 12 chs, av dep .9 ft 772 cubic yards at 6 cts	46 32
Side cutting on 5 chains, 25 cubic yards at 6 cents	5 10
Embankment at Rohrer's run 11 chains average depth 4.2 feet, 2986 cubic yards 12 cents	358 32
Side cutting on 29.5 chs, 432 cubic yards at 6 cents	25 92
Excavation on 16.60 chains, average depth 5.1 ft, (part of Mount Pleasant ridge) 6349 cubic yards at 10 cents	634 90
Two bridges of 16 and 12 feet \$253.40 and \$16 40	469 80
One under drain at \$12	12 00

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\$2,092 12

*Mile 5th*, Located on ground easy of excavation—between pickets No. 58 and 59 loose stones.

Excavation on 39 chains, average depth 12 feet, part of Mount Pleasant ridge, 42,920 cubic yards at 12 cents	5,150 40
Embankment at Wolf's run on 11.87 chains, average depth 2.8 feet, 2000 cubic yards at 10 cents	200 00
Excavation on 8.50 chs, av dep 3.2 ft 1954 c yds at 8 cts	156 32
Double drain on 10 chains, 98 cubic yards at 6 cents	5 88
Embankment at Harnishe's run 6 chains, average depth 2 feet, 724 cubic yards at 10 cents	72 40
Two bridges 12 feet, each \$103 40	216 80

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\$5,801 80

*Mile 6th*, Generally of easy formation—from pickets 68 to 72 estimated as common excavation, should stone occur it may remain to be quarried and broken for the Horse path.

Excavation on 4.50 ch av dep .5 ft, 180 c yds at 6 cts	10 80
Embankment on 9 ch av dep 1 ft, 492 c yards at 7 cts	34 44
Excavation on 15 ch av dep 2.5 ft 2700 cubic yds at 7 cts	189 00
Excavation at Heiss' on 23 chains, average depth 7.4 feet, 13,750 cubic yards at 10 cents	1375 00
Embankment on 9.50 ch av dep 2.1 ft 1172 c yds at 8 cts	93 76
Excavation on 6 ch av dep 1.8 ft 767 cubic yds at 7 cts	53 69
Embankment at Rigel's run 8 chains, average depth 3.6 feet, 1799 cubic yards at 11 cents	197 89
Bridge at Rigel's run 12 feet	114 40
One under drain	14 00

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\$2,082 93.

# CANAL REPORT.

139

*Mile 7th,* Is located on gentle sloping ground.

Excavation on 18 ch, av dep 1.6 ft, 2022 cubic yds at 7	141	54
Embankment at Bear's run on 5 chains, average depth 4.3 feet, 1380 cubic yards at 12	165	60
Excavation on 16 chs av dep 1.7 ft, 1911 cubic yards at 7	133	77
Side cutting on 10 chains, 188 cubic yards at 6	11	28
Excavation on 10 chs, av dep 1.8 ft, 1304 cubic yards at 7	91	28
Embankment on 6.4 chains, average depth 1.3 feet, 543 cubic yards at 9	48	87
Excavation on 11 chains, average depth 3.4 feet, 2706 cubic yards at 8	216	48
Bridge at Bear's run 12 feet	129	40
One under drain	14	00
	<hr/>	
	2952	22

*Mile 8th,* On gentle slopes declining south the whole section, easy for road forming.

Embankment on 9 chains, average depth 4.4 feet, 2,592 cubic yards, at Lemon's run, at 11 cents,	285	12
Excavation on 7 chains, average depth 0.8 feet, 405 cubic yards at 7 cent's	28	35
Embankment on 3 chains, average depth 0.4 feet, 74 cubic yards at 7 cents	5	12
Excavation 23.50 chains, average depth 3.2 feet, 5,370 cubic yards at 8 cents	429	60
Embankment on 3.25 chains, average depth 0.4 feet, 72 cubic yards at 7 cents	5	04
Excavation on 10.50 chains, average depth 2.3 feet 2,086 cubic yards at 7 cents	146	02
Embankment on 16.50, average depth 3.1 feet, 3,103 cubic yards at 10 cents	310	30
Bridge at Lemon's spring run 50 feet	310	12
One under drain	16	
	<hr/>	
	1,533	73

*Mile 9th,* On easy ground, the line passes south of the village of Hempfield, and then crosses the Marrietta turnpike. The section terminates on the east side of the Little Conestoga creek, which is passed with a truss bridge.

Excavation on 18.50 chains, average depth 3.7 feet, 4,930 cubic yaads at 8 cents	594	40
Embankment at Old Road, 86 cubic yards at 10 cents	8	60
Side cutting on 13 ch 254 cubic yards at 6 cents	15	24
Embankment on 17 ch, av dept 7 ft 675 c yds at 7 cents	47	23
Embankment at west end of Little Conestoga bridge on 10 chains, average depth 5.9, 3,987 cubic yards at 12 cts	478	44
Embankment at east end of do. on 1.78 chains, average depth 8.4, 1,107 cubic yards at 11 cents	121	77

Little Conestoga bridge 792 feet  
One under drain at old road

14,500  
14

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15,579 70

*Mile 10th, Easily formed, some of the small embankments made from widening the side ditches.*

Embankment on 1.44 chs av dep 3.2 ft 282 c yds at 10 cts	28 20
Excavation on 6.50 chs, av dept 3.3 ft 1,573 c yds at 8 cts	195 84
Side cutting on 12 chs, 226 cubic yards at 6 cents	13 56
Excavation on 7 chs, av dept 0.7 ft 36 c yards at 7 cents	22 80
Side cutting on 6 chs, 92 cub yards at 6 cents	5 52
Embankment on 11.50, av dept 1,343 cub yds at 10 cts	184 30
Excavation on 7 chs, av depth 1,266 cub yds at 7 cts	88 62
Embankment on 10 chs, av dept 2,505 cub yds at 12 cts	300 60
One culvert 3 feet	60
One under drain	15

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794 44

*Mile 11th, Of the same character as the last.*

Excavation on 4.80 chains, average depth 2.3 feet 781 cubic yards at 7 cents	54 67
Excavation on 6 chains, av depth 2.4 feet, 1,037 cubic yards at 7 cents	72 59
Embankment on 1,470 chains, average depth 2.7 feet, 2,436 cubic yards at 10 cents	243 60
Embankment on 13.50 chains average depth 2.1 feet, 1,908 cubic yards at 10 cents	190 80
Embankment on 14.90 chains, average depth 2.4 ft, 1,855 cubic yards at 10 cents	185 50
Excavation at Myers' summit on 15.13 chains, average depth 1.2 feet, 1,332 cubic yards at 7 cents	93 24
One culvert 3 feet	60 00
Two under drains at 15 dollars each	30

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930 40

*Mile 12th, Rock found at picket 207, which will be disposed of for the horse path—soil loam clay.*

Excavation on 13.17 chs, average depth 1.8 feet, 1,683 cubic yards at 7 cents	117 81
Excavation on 11.50 chains, average depth 2.5 ft, 2,078 cubic yards at 7 cents	145 46
Embankment at Ross' run 9.40 chains, average depth 3.6 feet, 2,099 cubic yards, at 10 cents	209 90
Excavation on 21 chains, average depth 4.1 feet, 6,254 cubic yards at 8 cents	500 32
Excavation on 5 chs, av depth 1.5 ft, 547 c yds at 7 cts	38 22

Embankment on 3 chains, average depth 0.5 feet, 83 cubic yards at 7 cents	5 81
Excavation on 5 chains, average depth 1.8 feet 629 cubic yards at 7 cents	44 03
Embankment on 2.80 chains, average depth 2.2 feet, 362 cubic yards at 10 cents	36 20
Bridge at Ross' run, 12 feet	108 40
One under drain	12
	<hr/>
	1,218 22

*Mile 13th.* A portion of this section passes about a quarter of a mile north of the buildings in the city of Lancaster, crosses Hardwick run east of Mr. Colesman's house, and Big Conestoga at a bluff near Mrs. Hall's residence. Limestone rock bottom in creek.

Embankment at south end of Hardwick bridge on 7.50 chains, average depth 6 feet, 2,928 cb yards at 13 cts	380 64
Embankment at north end of do. 7.82 chains average depth 4.3 feet, 2,175 cubic yards at 13 cents	282 75
Excavation on 11.45 chains, average depth 0.5 feet, 507 cubic yards at 6 cents	35 42
Excavation on 11.80 chains, average depth 4 feet, 3,450 cubic yards at 8 cents	276
Embankment at west end of Big Conestoga bridge on 3.60 chains, average depth 5.3 feet, 1,381 c yards at 10 cts	128 10
Embankment at east end of do. 8.69 chs, average depth 4.5 feet, 2,543 cubic yards at 13 cents	330 59
Hardwick bridge 244 feet	1,610 50
Big Conestoga bridge 1,400 feet	24,081
	<hr/>
	27,155

*Mile 14th.* The excavations on this section are moderate and easy, soil generally loam and clay at picket 27; one foot of rock, which can remain; the smaller embankments on this, as in other sections, are made up from widening the side ditches.

Side cutting on 14 chains, 200 cubic yards at 6 cents	12
Excavation on 19 ch av depth 2.1 ft 2859 c yds at 7 cts	198 73
Embankment on 7.75 ch av dept 2.6 ft 1195 c yds at 10 cts	119 50
Excavation on 20.25 ch av dept 4.4 ft 6670 c yds at 8 cts	533 60
do 10.60 ch av dept 2.6 ft 1980 c yds at 7 cts	138 60
Embankment on ch 3, av dept 0.5 ft 83 c yds at 7 cts	5 81
Two under drains at \$15 and \$12	27
	<hr/>
	1,033 24

*Mile 15.* Passes over gentle sloping ground, declining south; soil loam, clay, easily excavated.

Embankment on 13.76 ch, av depth 4.5 ft, 4011 c yds in Landis' Woods, at 12 cents	481	32
Excavation on 2.68 ch av dept 0.6 ft 121 c yds at 6 cts	7	16
Embankment on 4.50 ch av dept 0.8 ft 190 c yds at 7 cts	18	30
Excavation on 23.85 ch av dept 4.9 ft 8747 c yds at 9 cts	787	23
do on 9 ch av dept 1 ft. 671 c yds at 7 cts	46	97
Side cutting on 6 ch 65 c yds at 6 cts	3	90
Excavation on 8.33 ch av depth 5 feet 6973 cubic yards, part of Landis' at 10 cents	697	30
Culvert 3 feet at \$60	60	
	<hr/>	
	2097	28

*Mile 16th.* The cutting at the commencement of this section was not sounded to the full depth; it is estimated as common excavation, and should rock however occur, it may remain for the formation of the horse path; the rest of the section is nearly on surface.

Excavation, on 20.44 chains, av depth 8.9 feet, 15,204 cubic yards, part of Landis' ridge, at 12 cents.	1824	48
Embankment 5.50 ch, av depth 1.3 ft, 398 c yds at 8 cts	31	84
Side cutting on 14.50 ch 402 cubic yards at 6 cents	24	12
Embankment and excavation on 29.50 ch 653 c yds at 7 cts	44	31
One under drain	14	
	<hr/>	
	1938	75

*Mile 17th.* Road forming easy on this section; small embankments raised from earth obtained in widening side ditches.

Embankment on 10.50 ch av dept 0.7 ft 581 c yds at 7 cts	26	67
Excavation on 9.50 ch av depth 0.8 ft 588 c yds at 6 cts	35	28
do on 34.19 ch av depth 4.4 ft 11,041 c yards, at Musgrove road, at 9 cents	993	69
Excavation on 6.20 ch av depth 2.1 ft 24,000 c yds at 7 cts	168	
Embankment on 3.75 ch av dept 0.5 ft 104 c yds at 7 cts	7	28
One under drain	12	
	<hr/>	
	1242	92

*Mile 18th.* Crosses Mill creek at S. Gibbon's; the line passes between his house and barn, and beyond Mill creek a branch of it is crossed; the section generally is of easy formation; soil, loam, clay.

Embankment on 11.86 ch av depth 1.8 ft 1216 c yds at 8 cts	97	28
do at west end of Mill creek bridge, 10.50 chains, av depth 6.9 feet, 5155 cubic yards at 15 cents	773	25



# CANAL REPORT.

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Embankment at east end of bridge, on 3.90 chains, av depth 5.7 feet, 1516 cubic yards at 11 cents	166 76
Excavation on 16.50 ch av depth 1.6 ft 1922 c yds at 7 cts	134 54
Embankment at west end of Conard's bridge on 3 ch, av depth 5 feet, 1278 cubic yards at 12 cents	153 36
Embankment at east end of bridge on 6.75 chains, av depth 4 feet, 1694 cubic yards at 10 cents	169 40
Excavation on 15.75 chains, av depth 4.1 feet, 4472 cubic yards at 8 cents	357 76
Mill creek bridge 528 feet	9204
Conard's bridge 122 feet	710 50
	<hr/>
	11,766 85

*Mile 19th.* This section crosses the old Lancaster road, and in general, it is of easy formation; soil, clay, loam.

Excavation on 7.63 chains, av depth 1.6 feet, 853 cubic yards at 7 cents	59 71
Embankment on 3.66 chains, av depth 0.4 feet, 91 cubic yards at 7 cents	6 37
Excavation on 5.95 chains, av depth 0.8 feet, 342 cubic yards, at 6 cents	20 52
Embankment on 14.90 chains, av depth 1.2 feet, 996 cubic yards at 8 cents	79 68
Excavation on 2.50 chains, average depth 1.2 feet, 103 cubic yards at 6 cents	6 18
Embankment on 7.50 chs. 123 cubic yards at 7 cents	8 61
Excavation on 15 chs, av depth 3.7 ft. 4079 c yds at 8 cts	326 32
Embankment on 7.70 chains, av depth 3.3 feet, 1582 cubic yards, at 11 cents	174 02
Excavation on 11.90 chains, av depth 5.3 feet, 4739 cubic yards at 9 cents	426 50
One culvert 5 feet	60
Under drain	13
	<hr/>
	1,180 92

*Mile 20th.* Passes over gentle sloping ground, declining towards Stauffer's run; soil, loam clay.

Excavation on 14.79 chs, av depth 5.9 ft, 6761 c yds at 9 cts	608 67
Embankment on 8.42 chs, av dept 3.5 ft, 1836 c yds at 10 cts	183 60
Excavation on 7.05 chs, av dept 3.4 ft. 1740 c yds at 8 cts	139 20
Embankment on 10.60 chains, av depth 4.7 feet, 3297 cubic yards at 11 cents	362 67
Excavation on 11.50 chains, av depth 3.0 feet, 2445 cubic yards at 8 cents	195 60
Embankment on 5 chs, av depth 0.6 ft, 167 c yds at 7 cts	11 69
Excavation on 4.50 chs, av depth 0.7 ft, 229 c yds at 6 cts	13 74
Embankment on 7 chs, av depth 2.2 ft, 890 c yds at 10 cts	89

Excavation on 1.71 chs; av depth 0.4 ft, 57 c yds at 6 cts	3 45
Two culverts of 3 feet	120
One under drain	15
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	1,742 59

*Mile 21st.* The greater part of this section is located on uneven ground, it crosses Soudersburg valley at Weaver's. The cutting is easy, soil, loam, clay.

Excavation on 2.23 chains, average depth 1.6 feet, 251 cubic yards at 7 cents	17 57
Embankment on 10 chains, average depth 1.7 feet, 957 cubic yards at 10 cents	95 70
Excavation on 4.50 chs, av dep 1 ft, 318 c yars at 6 cts	19 08
Embankment on 9.50 chs, average dept 4.2 ft, 3,671 cubic yards at Porter's run, at 12 cents	440 52
Excavation on 9.72 chs, average dept 5.1 ft, 3,770 cubic yards at 8 cents	301 60
Embankment at west end of Soudersburg valley, bridge on 6.30 chs, average dep 5.7 ft, 2,449 c yards at 12 cts	293 88
Embankment at east end of bridge on 5.10 chs, average depth 5.5 ft, 1,891 c yards at 12 cents	226 92
Excavation on 430 chs, average depth 3.3 ft, 1,029 cubic yards at 8 cents	82 32
Embankment on 9.40 chs, average depth 3.2 ft, 1,889 cubic yards at 10 cents	183 90
Bridge at Porter's 16 feet	114 37
Bridge at Soudersburg valley 500 feet	2,127
One culvert 3 feet	60
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	3,967 86

*Mile 22d.* At the commencement of this section, a ridge of easy excavation is pierced, after which the ground falls slightly below the graded line, it crosses Brisbrane's run and leaves an embankment between the bridge at that run, and Pequa creek.

Excavation on 27 chains, average depth 11.4 ft, 27,650 c yards at Weaver's summit, at 12 cents	3,318
Embankment on 10 chains, average depth 1.7 ft, 1,012 cubic yards at 10 cents	101 20
Embankment on 9.50 chs, average depth 1.2 ft, 636 cubic yards at 7 cents	44 32
Excavation on 10 chains, average depth 1.8 ft, 1,307 cubic yards at 7 cents	91 89
Embankment at west end of Brisban's run, bridge on 5.15 chains, average depth 5.6 ft, 1,912 cubic yds at 11 cts	213 62
Embankment at east end of Brisban's and west end of Pequa bridges on 5.65 chains, average depth 7.2 feet, 2,552 cubic yards at 15 cents	379 80

# CANAL REPORT.

145

Bridge at Brisban's run 442 feet  
Pequea bridge 600 feet

\$	1,926
	5,318
	<hr/>
	11,392 63

*Mile 23d*, Passes over an undulating surface, encountering ledges of lime stone which afford excellent building stone, which will be wanted in the bridges and on the road. The excavation is only estimated as common cutting. This section crosses the Lancaster and Philadelphia turnpike and terminates at a bluff at the head of Eshleman's dam.

Embankment at east end of Pequea bridge on 472 chains, average depth 6.9 ft, 2,296 cubic yards at 13 cents	298 48
Embankment on 9.50 chains, average depth 1.7 ft, 969 cubic yards at 10 cents	96 90
Embankment on 4.30 chains, average depth 1.7 ft, 433 cubic yards at 10 cents	43 30
Excavation on 13.70 chains average depth 4.8 ft, 4,970 cubic yards at 8 cents	397 60
Embankment on 7.50 chains, average depth 1 ft, 422 cubic yards at 8 cents	33 76
Excavation on 8 chains, average depth 3 ft, 1,749 cubic yards at 8 cents	139 93
Embankment on 5.42 chs, average depth 3.2 ft, 1,059 cubic yards at 10 cents	105 90
Excavation on 9 chains, average depth 0.3 feet, 231 cubic yards at 6 cents	13 86
Embankment on 1.40 chs, av dep 5.9 ft, 563 cb yards at west end of Eshleman's bridge at 12 cents	67 56
Two culverts of 3 and 4 feet at 70 and 60 dollars	130
Two under drains at 14 and 15 dollars	29
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	1,356 28

*Mile 24th*, Is located on undulating ground—the cuttings are easy. The section after it passes between Mrs. M'Ilvaine's house and barn, terminates in the orchard.

Embankment at east end of Eshleman's bridge on 5.34 chains, average depth 9 ft, 2,227 c yards at 12 cents	267 24
Embankment on 8.10 chains, average depth 4.4 ft, 2,277 cubic yards at 11 cents	250 47
Excavation on 1.90 chains, average depth 4.8 ft, 714 cubic yards at 8 cents	57 12
Embankment on 7.68 chains average depth 4.2 ft, 2,052 cubic yards at 10 cents	205 20
Excavation on 3 chains, average depth 1.5 ft, 320 cubic yards at 7 cents	22 40
Embankment on 6.90 chains, average depth 5.6 ft, 2,623 cubic yards at 10 cents	262 30

Excavation on 19.50 chains, average depth 8.6 ft, 13,991 cubic yards at 9 cents	1,259 19
Embankment at M'Irvine's run on 8.96 chains av depth 6 ft, 37.01 cubic yards at 11 cents	407 11
Bridge at Eshleman's mill pond, 419 feet	2,085 75
Bridge at Eshleman's run, 132 feet	1,029 50
One culvert 3 feet	60
Two under drains at 17 and 18 dollars	35
	<hr/>
	5,941 28

*Mile 25th*, Is traced on sloping ground, declining to London run, less uneven on the surface than the last section, light loam, liable to wash.

Embankment on 6.88 chains av depth 2.1 feet 853 cubic yards at 10 cents	85 50
Excavation on 9.50 chains av depth 2.7 feet 1863 cubic yards at 7 cents	130 41
Embankment on 9.47 chains av depth 1.6 feet 897 cubic yards at 8 cents	71 76
Excavation on 7.50 chains av depth 3.4 feet 1825 cubic yards at 8 cents	146 00
Embankment on 7.65 chains av depth 5.8 feet 3032 cubic yards at captain John Slaymaker's at 10 cents	303 20
Excavation on 6.35 chains av depth 4 feet 1841 cubic yards at 8 cents	147 28
Embankment on 3.68 chains av depth 3.6 feet 1980 cubic yards at 10 cents	198 00
Excavation on 10 ch's av depth 3.3 ft 2348 cu yds at 8 cts	187 84
Bridge at captain Slaymakers 16 feet	377 00
One under drain	14 00
One culvert 3 feet	60 00
	<hr/>
	1,720 79

*Mile 26th*, Continues along the slopes of London run, crosses a branch which leads from Williamstown, at Pickets 276 limestone rock, which will be used for abutments of the bridge. The line crosses the Lancaster and Philadelphia turnpike twice. This section is located on favorable ground.

Excavation on 10.21 chains, av depth 0.5 feet 392 cubic yards at 6 cents	23 52
Embankment at west end of Williamstown bridge on 3.60 chains av depth 5.8 feet, 1406 cubic yards at 12 cents	168 72
Embankment at east end of bridge on 2.60 chains average depth 5.9 feet, 1056 cubic yards at 12 cents	126 72
Excavation on 8.20 chains average depth 3.6 feet, 2122 cubic yards at 8 cents	169 76
Side cutting on 15 chains, 271 cubic yards at 6 cents	16 26
Embankment on 7 chains, av depth 0.9 feet, 357 cubic yards at 7 cents	24 99

## CANAL REPORT,

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Excavation on 17.20 chains av depth 2.2 feet, 2710 cubic yards at 7 cents	189 70
Embankment on five chains av depth 2.2 feet 640 cubic yards at 10 cents	64 00
Williamstown bridge 409 feet,	2376 00
Two under drains 2 feet each, \$12 and \$14	26 00

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 3185 67

*Mile 27th,* The surface on this section is rather uneven, the cuttings are considered easy, soil, loam and clay slights.

Excavation on 7.25 chains av depth 1.4 feet, 776 cubic yards at 7 cents	54 32
Embankment on 10.88 chains av depth, 6.7 feet, 5147 cubic yards at 12 cents	617 64
Excavation on 4 chains av depth 6.5 feet, 2053 cubic yards at 8 cents	164 24
Embankment on 10.50 chains av depth 9.3 feet, 2178 cubic yards at 10 cents	217 80
Excavation on 12.50 chains av depth 7.7 feet, 7818 cubic yards at 9 cents	703 62
Embankment on 7.54 chains av depth 2.5 feet, 1115 cubic yards 10 cents	111 50
Excavation on 2 chains, 147 cubic yards at 6 cents	8 82
Embankment on 13.29 chains av depth 2.4 feet, 1879 cubic yards at 12 cents	225 48
One culvert 3 feet	60 00
Two under drains \$18 and \$16	34 00

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 \$2,197 42

*Mile 28th,* This section is rough, with considerable embankment at Picket 323, it leaves Abeys lane, and crosses his meadow and Strasburg road to the side hill of the Mine ridge, soil, loam, clay and gravel.

Embankment on 18.30 chains av depth 10.9 feet, 16055 cubic yards at 15 cents	2,408 25
Excavation on 2.30 chains av depth 7 feet, 1280 cubic yards at 8 cents	102 40
Embankment on 8.44 chains av depth 5.6 feet 3161 cubic yards at 10 cents	316 10
Excavation on 6.05 chains av depth 2.4 feet, 1054 cubic yards at 7 cents	73 78
Embankment on 7 chains av depth 0.6 feet 234 cubic yards at 7 cents	16 38
Embankment at Eby's run on 9.55 chains av depth 9.2 ft 6742 cubic yards at west end of bridge at 12 cents	809 04
Embankment at east end of bridge on 3.22 chains av depth 7.3 feet, 1676 cubic yards at 10 cents	167 60
Excavation on 5.60 chains av. depth 7.6 feet, 3467 cubic yards at 9 cents	312 03

Embankment on 4.75 chains av depth 0.5 feet, 118 cubic yards at 7 cents	8 25
Excavation at Strasburg road, on 4 chains av depth 3.3 ft. 960 cubic yards at 8 cents	76 80
Bridge at Eby's run 115 feet	592 50
Two under drains \$28 and \$15	43 00
	<hr/>
	4926 14

*Mile 29th*, Is traced on the side hill of the Mine ridge—the line recrosses the Strasburg road, the side slopes vary from 3° to 9° are principally wooded, soil, easy of excavation.

Embankment on 4.35 ch, av dep 2.2 ft, 554 c yds at 9 cts	49 86
Excavation on 5.22 ch, av dep 3 ft, 1122 c yds at 8 cts	89 76
Side embankment on 240 ch, 215 cubic yards at 8 cts	17 20
Excavation on 8.12 ch, average depth 3.9 feet, 2346 cubic yards at 8 cents	187 68
Embankment on 7.3 ch, av dep 4.1 ft, 1893 c yds at 10 cts	189 30
Excavation on 8.82 ch, av dep 2.9 ft, 1862 c yds at 8 cts	148 96
Embankment on 3. ch, av dep .7 ft, 118 c yds at 8 cts	9 44
do at run on 3.9 ch, av dep 4.7 ft, 1183 c yds at 10 cts	118 30
Excavation on 8.52 ch, av dep 3.3 ft, 2021 c yds at 8 cts	161 68
Side cutting on 4 ch, 102 c yds at 6	6 12
Excavation on 16 ch, av dep 2.6 ft, 2988 c yds at 7 cts	209 16
One culvert	60 00
One under drain \$12	12 00
Bridge at run 12 feet	192 40

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\$1,451 86

## SUMMARY.

Mile first,	513 47
“ second,	1,656 90
“ third,	1,892 97
“ fourth,	2,092 12
“ fifth,	5,801 80
“ sixth,	2,082 98
“ seventh,	952 22
“ eighth,	1,595 73
“ ninth,	15,579 70
“ tenth,	794 44
“ eleventh,	930 40
“ twelfth,	1,218 22
“ thirteenth,	27,155 00
“ fourteenth,	1,035 24
“ fifteenth,	2,097 28
“ sixteenth,	1,938 75
“ seventeenth,	1,242 92
“ eighteenth,	11,766 85
“ nineteenth,	1,180 92

" twentieth,	1,742 59
" twenty-first,	5,967 86
" twenty-second,	11,392 63
" twenty-third,	1,356 28
" twenty-fourth,	5,941 28
" twenty-fifth,	1,720 79
" twenty-sixth,	3,185 67
" twenty-seventh,	2,197 42
" twenty-eighth,	4,926 14
" twenty-ninth,	1,451 86

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\$119,350 51

For superintendence, &c.

11,935 05

Total amount,

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\$131,285 56

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In comparing the estimate of last year with the one now submitted, the cost per mile of road forming is greater in the latter than the former, but the shortening of the distance between Columbia and the Gap, makes a material difference in the cost of the other contingent parts of the rail-way.

The excess of this item in the old estimate, is \$41,505<sup>36</sup>/<sub>100</sub>; to which add the road forming \$81,049<sup>12</sup>/<sub>100</sub>, and the amount is \$122,554<sup>48</sup>/<sub>100</sub>, giving the excess \$3,204<sup>48</sup>/<sub>100</sub>, a sum probably sufficient to complete that portion of the line between the engine plane and canal basin at Columbia, not included in this estimate.

In refering to the maps, it will be perceived that the profile of the whole line has been minutely ascertained.

All which is respectfully submitted,

JOHN WILSON, *Engineer*.

*Sadsbury township, Lancaster county,*

*August 15, 1828.*

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## No. 2.

*Report and estimate on the continuation of the Pennsylvania Rail-way from the Gap to Philadelphia, by John Wilson, Engineer.*

*To the board of Canal Commissioners of the State of Pennsylvania*

GENTLEMEN:

Having reported in August last, in conformity with your instructions, upon the location of that portion of the Pennsylvania rail road, between the Mine Ridge and Susquehanna river, and having designated it as the western division, I have now the honor to lay before the board, a continuation of the same, in relation to

the location of the eastern division of that road, accompanied with various plans and drawings illustrative of the operation, to which I shall refer.

Having brought to the view of the board the subject of an experimental line then in progress, (which had for its object the establishment of two inclined planes; one to attain the elevation of the ground at the Gap of Mine Ridge without a deep cutting, and the other to descend into the Chester valley, in the neighborhood of Coatsville, and there form a connexion with the explored line of last year;) the surveys and investigations involving the question of comparative expense and facility of transportation, between this route and the one formerly reported upon, were soon completed. The difference of distance between the latter and the route of the present location, is of little account, and the difference of expense would not compensate for maintaining and keeping in repair the steam engines.

I now proceed to describe briefly the route of the rail way location, commencing at the termination of the 29th mile from Columbia. A reference to the general plan No. 2, will assist in explaining the course of the line.

The graduated line enters the ground at the Gap of Mine Ridge, a few chains from its place of beginning; its greatest depth from the apex of the ridge is  $55\frac{2}{10}$  feet, and the length of excavation is 42 chains. From different borings made on this section, there is nothing to apprehend from rock. The slopes on each side of the ridge will afford the advantage of using temporary railways as a means for the removal of the earth; and their application in the various cuttings and embankments upon the line, will have the effect of reducing the expense of road formation.

From the termination of the Gap excavation to Moore's mill, the line is traced over the same ground described in former reports. It crosses the branch of Octorara from which the mill derives its supply of water, very favorably for a bridge; and after winding along the slopes of the steep side hill of that creek, it enters the great valley of Chester, near the woollen factory of ——— Noble, Esq. hence it is traced on the southern side of North Valley hill to the eastern branch of Octorara creek, which the line crosses below Cloud's mill dam. Continuing on the same side of the valley hill, and passing through the lands of Messrs. Watkins, M'Gray, Phillips, Boyd and others, it attains a summit in Smith's field. (being the dividing ridge between the waters of Susquehanna and Delaware rivers,) beyond the Cochraneville road; and thence crosses over to the northern side slope of the south valley hill, from whence it is traced on very favorable ground, intersecting in its course Buck run below the mill of James Truman, and the West Chester road, and finally attains the summit ridge dividing Buck run and Little Brandywine, beyond the residence of G. Isreal, Esq.

At the position where Buck run is crossed, it was thought expedient to make the attempt to leave Chester valley, by following the



valley of that water course. A line was accordingly traced along the margin of its southern bank for two miles, which passed over rugged and uneven ground, and was finally abandoned. Were it practicable to have located the route of a rail way following the source of Buck run, and keeping a direction south of West Chester, towards the Schuylkill and Philadelphia, it would have afforded great advantages to an important manufacturing country; but the circuitous nature of the line, (rendered so from the great irregularities and unevenness of the surface,) and the expense of construction, caused me to desist from making any further examinations in this section of country.

Returning to the summit near Gen. Israel's which is intended to be depressed 33 feet, the rail-way line inclines northwardly towards the North Valley hill, crosses on the dividing ridge, the Wilmington road, and passes west of — Hope's dwelling house; thence eastwardly on gentle sloping ground of the Valley hill, and is traced without varying much from that direction until it crosses West Brandywine, a few chains north of Coatesville; whence it proceeds to the ridge separating the waters of the West from the East Brandywine, designated in my former report as "Gardiner's summit."

While the locating party were advancing with their line of demarcation, and after the exploring party had completed all the requisite examinations to Gardiner's ridge, the latter were directed to explore a new line from that summit proceeding towards Downingtown, on the south side of the valley, and to endeavor after passing over west Brandywine to reach the south valley side hill, with such a level as would enable them at a maximum rate of graduation, to cross the bridge through any of the chasms which might offer the least expense in constructing the rail way.

The first experimental line was graded to the Brandywine, to a position north of Downingtown, and which offered a favorable place for crossing that water course. In extending this line eastwardly however, it was found to be unfavorable for our purpose.

Upon examining the ground to the south of where the Lancaster turnpike passes Brandywine, another position favorable for crossing presented itself; and having transferred our former level to it, we commenced tracing a line to the summit ridge at Baldwin's, which offered no impediment to the construction of a rail way; (see position B, on map,) and from whence after crossing the valley creek, south of Baldwin's mill, the graduation was extending along the slope of the south valley hill, and finally terminated at the "pass" marked C. (see map,) which is nearly opposite to the 21 mile stone from Philadelphia on the Lancaster turnpike.

The result of these various examinations were not completed until the location, (which was steadily advancing upon the old route,) had reached a position east from the white horse summit.

As the explorations made last year from this summit, with a view to find (by the nearest and most eligible route to Philadel'

phia) a position, from which, we could leave Chester valley, were very unsatisfactory, and having fully ascertained the practicability of locating a favourable line for the rail-way, upon the south side of the valley from Coatesville, to the point (C.) already noticed, I therefore did not hesitate to discontinue the location upon the old route, and to direct a minute and accurate location of the new.

While this was in progress, a position marked D. (on map) was assumed (in Thomas' field, between the Turnpike and Boot road,) in extension of the graded line from the pass C. and from which we proceeded with the location of the rail-way eastward, in a direction towards the Green tree tavern; and keeping upon the ridge dividing the waters of the valley and Crum creeks, and crossing the Lancaster turnpike, it inclines more northerly on the same ridge and recrosses the turnpike at Paoli tavern: from thence it proceeds eastwardly and again crosses the turnpike in front of the general Jackson tavern; it then runs nearly parallel with that road for a mile further, and passes to the south side of the same at Mrs. Robison's; thence through lands of Vanleer, Porter and Carter, it enters the ground in I. Reese's field, leaving his barn to the left, and passing under the turnpike, follows by an easy curve, the most favourable ground to the rear of the Spring tavern; from whence it takes a more eastwardly direction, in order to avoid the high ridge near the Lamb tavern, which it leaves to the left. It is then traced through lands of Taylor, Weatherby, Kennedy and Mrs. Henderson, and passes to the northern side of the turnpike, proceeding to the summit in Mrs. Grove's field, which lies north of the Spread eagle tavern.—Leaving the latter summit the surface of which is below the line of rail way, the road is located on lands of Edward Siter and John Pusey, thence passing thro' Mrs. Abram's orchard, it proceeds towards the residence of Benjamin Mould, which it leaves to the right; and after crossing the ravine east of his house, it is traced on gentle sloping ground through lands of Richard Kimber, Lemuel George, and A. Lewis, thence crossing the road which leads to the Gulph Mills, the rail-way is continued without much deviation from the explored line of last year, to the summit in Rudolph's field, which is about 19 feet above the bed of the road.

Proceeding in a southwardly course from Rudolph's through the property of Messrs. Curwin and Thomas, it approaches the turnpike, and after crossing it near the toll gate, about nine miles from Philadelphia, it still keeps its southwardly direction, leaving the Union tavern (Balm's) to the left, and bending northwardly recrosses the turnpike about half a mile east of the Buck tavern; from whence it runs nearly in a direction with the old Lancaster road, on the ridge dividing the waters of Cobb's creek and Schuylkill river, leaving that road at the seven mile stone, which is the position at which the surveys and estimates of last year terminated.

Thence the line is traced across the flat rock bridge road and bending eastwardly through the lands of Mr. George, passes near

Hoffman's house and keeps its eastwardly direction to the lane leading to Mr. George's house; thence through his fields passing north of his barn, it proceeds to the position E. on the general plan, north of the residence of the late judge Peter's; thence descending by an inclined plane of about 180 feet, crosses at a favourable place the Schuylkill river, and enters the bed of the old Union canal.

Following the bed of that canal to a position east of the Bush Hill establishment, it curves southwardly, and enters Broad street at its intersection with Callowhill street, proceeding down the centre of the former, it crosses Vine street and terminates conformably to the law within the limits of Philadelphia.

The located distance between the head of the inclined plane in Columbia, and the south side of Vine street in Philadelphia, is 82 miles and 8 tenths; and by the explored line of last year which terminated at the seven mile stone on the old Lancaster road, the distance from the Susquehanna to that point, including bridges was 85 miles and 66 hundredths; add to the latter the extension to Vine street, and it makes a difference between it, and the actual location of 3 miles and 95 hundredths.

It is 79½ miles from our place of beginning on the Susquehanna to Schuylkill river, and the distance between the two inclined planes is 78 miles and 88 hundredths.

Various examinations and experimental lines were traced south-erly between the position at Benjamin Maul's and the seven mile stone, on the old Lancaster road. These were undertaken with a view to find a more favourable route by which we could approach the Schuylkill, than the one now located; but in every instance that an attempt was made to leave the ridge dividing the waters of the Schuylkill and Delaware rivers, the country became either exceedingly broken and intersected by ravines, or, its surface depressed too rapidly for our graduations. From some of the positions, and with the aid of two inclined planes and stationary steam engines, the level portion of country lying south of the present location, might be passed over, and a different direction given to the course of the rail-way; but it was considered more advantageous even with a reasonable increase of distance, to limit the application of steam power to the two points upon the line already noticed in this report.

The different horizontal curvatures on the eastern division, vary in their radii from 541 to 1891 feet; the curves which were traced by the smaller radius were but seldom adopted; and in the final opening and grading of the road, many of these, may be considerably improved, without much additional increase to the cost of road formation.

In referring to those sections on the maps where the trace of the rail-way exhibits a serpentine character, we do not increase the distance thereby, so much as might be expected.

It is assumed that the whole distance between Broad street in Philadelphia and Columbia, on the Susquehanna river by the rail-way is only increased ( $\frac{1}{10}$ ) one tenth part beyond the nearest and

most direct public roads between those places. Some sections of considerable extent do not vary much from the travelled road, but the mean increase for every ten miles is about one mile.

To elucidate this by an example, I will observe, that from our level picket No. 159 (see map) which is nearly opposite to the twelve (12) mile stone, on the Lancaster turnpike (which is thirteen miles from Broad street;) the distance from thence, following the serpentine course of the rail way to the intersection of the line at Callowhill and Broad streets is 14 miles and 24 chains; the difference between the two being precisely in proportion to the excess already stated; the whole of the comparative increase occurs between the picket already referred to, and the seven (7) mile stone on the old Lancaster road, for, from the latter position to Broad street our I cated distance is rather shorter than the extent of that road to the same street.

Such further information as may be deemed necessary to be laid before the board for their satisfaction, will be communicated after the estimate, which is now submitted.

Estimate of eastern division of Pennsylvania rail-way, commencing at western end of cut at Gap (in Mine ridge) and terminating at intersection of Broad and Vine streets, Philadelphia.

*Mile 30th.* The beginning of this mile pierces the Mine ridge at Gap depth, at apex 35  $\frac{3}{8}$  feet—from soundings taken, the cutting will be clear of rock, after leaving the cut it passes over good ground, crossing a small stream and ends near R. Moore's dwelling.

Excavation on 2.71 ch, dep 1.2 ft, 89 cubic yards at 7 cts	6 23
Cutting at Gap on 41 90 chains, average depth 20.7 feet,	
97508 cubic yards at 17 cents	16,576 56
Embankment on 7.70 ch, dep 1.1 ft, 235 c yards at 8 cts	18 10
Excavation on 12 ch, dep 5.1 ft, 1783 c yards at 8 cts	142 64
Embankment on 8 $\frac{1}{2}$ ch, av dep 3.7 ft, 1977 c yds at 11 cts	207 47
Excavation on 1 $\frac{1}{4}$ ch, av dep 3.4 ft, 617 c yds at 7 cts	43 19
One bridge 12 feet	177 56
Under drain	12 00

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S17,184 25

*Mile 31st.* Passes over undulating ground consisting of short cuttings of easy excavation and embankments; soil, loam and clay. Crosses and re-crosses Newport turnpike.

Excavation on 18 $\frac{1}{4}$ ch, av dep 7.2 ft, 10510 c yds at 9 cts	945 50
Embankment on 19.50 ch, av dep 8.3 ft, 12046 c y at 12 cts	1,445 52
Excavation on 10 ch, av dep 7.8 ft, 6300 c yds at 8 cts	504 00
Embankment on 8 $\frac{1}{2}$ ch, av dep 3.7 ft, 2003 c yds at 10 cts	200 50
Excavation on 3 ch, av dep 8.5 ft, 2118 c yds at 7 cts	148 26
Embankment on 5.90 ch, av dep 5.5 ft, 2173 c y at 10 cts	217 50
Excavation on 1.20 ch, av dep 8 ft, 786 c yds at 7 cts	55 02

# CANAL REPORT.

195

Embankment on 2½ ch, av dep 3.1 ft, 437 c yds at 10 cts	43 70
Two culverts of 6 and 3 feet	240 00
Two under drains at 818 and 15	33 00
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	\$8,853 00

*Mile 32d*, Is traced over undulating ground of easy excavation, and terminates on south side of Moore's mill-dam, which is crossed by a balustrade bridge.

Embankment on 5½ ch, av dep 2.3 ft, 719 c yds at 10 cts	71 90
Excavation on 5 ch, av dep 2½ ft, 799 c yds at 7 cts	55 93
Embankment on 17½ ch, av dep 3.5 ft, 4001 c y at 11 cts	440 11
Excavation on 12 ch, av dep 7.1 ft, 6854 c yds at 9 cts	548 32
Embankment on 4.55 ch, av dep 6.2 ft, 1954 c y at 10 cts	195 40
Excavation on 9.20 ch, av dep 2.8 ft, 1822 c yds at 7 cts	127 54
Embankment on 5 ch, av dep 1.6 ft, 456 c yds at 9 cts	41 04
do at west end of Moore's mill on 4½ chains, average depth 3.6 feet, 1024 cubic yards at 11 cts	112 64
Bridge at Moore's 472 feet	2,615 93
Three culverts of 3.4 and 3 feet,	200 00
	<hr/>
	\$4,408 81

*Mile 33d*, Is located along a rough side hill, encountering ledges of rock and loose stone.

Embankment at south end of Moore's bridge on 4 11 chains average depth 5 feet, 1360 cubic yds at 10 cts	136 00
Excavation on 3.20 ch, av dep 15.6 ft, 20410 c y at 11 cts	2,245 10
Embankment on 12.65 chains, average depth 4.9 feet, 4031 cubic yards at 11 cents	448 91
Excavation on 6.65 ch, av dep 7.8 ft 4243 c yds at 8 cts	339 44
Embankment on 4½ ch, av dep 2 ft, 535 c yds at 9 cts	48 15
Excavation on 10 ch, av dep 6.10 ft, 503 c yds at 6 cts	30 18
do on 8 ch, av dep 5.1 ft, 3073 c yds at 8 cts	245 84
Embankment on 9.70 ch, av dep 3.8 ft, 2357 c y at 10 cts	235 70
One under drain	18 00
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	\$3,747 52

*Mile 34th*, The first part of this mile passes over smooth sloping ground, then crosses Octorara creek with a considerable excavation on each side, and turning a point of North valley ridge, enters the Great valley of Chester county.

Excavation on 4.50 ch, av dep 3.2 ft, 997 c yds at 7 cts	69 79
do on 21½ ch, 945 cubic yards at 6 cents	56 76
Embankment on 3½ ch, depth 1.1 ft, 167 c yds at 8 cts	8 56
Excavation on 11.20 ch, av dep 12.7 ft, 13220 c y at 9 cts	1,190 61
Embankment on 2.20 ch, at both ends of Cloud's bridge, 1018 cubic yards at 10 cents	101 18
Excavation on 4.34 ch, av dep 19 ft, 6891 c yds at 9 cts	600 19

Embankment on $3\frac{1}{2}$ ch, av dep 9.8 ft, 841 c yds at 10 cts	84 10
Excavation on 4 ch, av dep 6.5 ft, 2050 c yds at 7 cts	143 50
Side embankment on 11.11 ch, 717 c yds at 9 cts	64 53
Bridge at Cloud's 452 ft,	2,605 56
One under drain	17 00

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85,139 20

*Mile 35th.* Is traced along the gentle side hill of North valley ridge. Soil, clay and sand stone.

Embankment on 9.39 ch, av dep 9.10 ft, 1610 c yds at 7 cts	11 83
Excavation on 11 ch, av dep 1.5 ft, 1195 c yds at 7 cts	83 65
Embankment on $6\frac{1}{4}$ ch, av dep 2.2 ft, 838 c yds at 9 cts	77 22
Excavation on 5.40 ch, av dep 3.6 ft, 1424 c yds at 7 cts	99 68
do on 7.60 ch, 115 cubic yards at 6 cents	6 90
Excavation and embankment on 10 ch, 412 c yds at 7 cts	28 14
Embankment on $4\frac{1}{2}$ ch, av dep 3.4 ft, 945 c yds at 10 cts	94 50
Excavation on 16 ch, av dep 1.4 ft, 1634 c yds at 7 cts	114 38
Embankment on 8.5 ch, av dep 2.5 ft, 1254 c y at 10 cts	125 40
Excavation on 1 ch, av dep 3.8 ft, 274 c yds at 7 cts	19 18
Two culverts of 5 and 4 feet	200 00
One under drain	18 00

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2878 68

*Mile 36th.* Passes over slightly undulating side hill until it reaches Forree's ridge, then crosses the Valley on the west side of a ridge, dividing the waters of Delaware and Susquehanna rivers, (Smith's ridge.) Soil, clay and loam.

Excavation on 4.40 ch, av dep 3.6 ft, 1203 c yds at 7 cts	84 21
Embankment on 9 ch, av dep 3.8 ft, 2165 c yds at 10 cts	216 50
Excavation on 9.5 ch, av dep 9.10 ft, 637 c yds at 6 cts	38 22
Embankment on 10.5 ch, av dep 3.5 ft, 2360 c y at 10 cts	230 00
Excavation on 205 ch, av dep 7.3 ft, 11954 c y at 8 cts	956 32
Embankment on 22.11 ch, av dep 3.4 ft, 4593 c y at 11 cts	505 21
Two culverts of 3 feet, and one under drain	138 00

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82,163 48

*Mile 37th.* At the commencement of this mile, the line pierces Smith's ridge, soil easy of excavation; it then proceeds to the South Valley hill, along which it is traced on gentle sloping ground, and ends on east side of ravine, which is crossed by a balustrade bridge.

Excavation at Smith's Ridge on 31.40 chains, av depth 9.6 feet, 25860 cubic yards, at 9 cents	2,327 40
Side excavation on 26 chains, 862 c yds, at 6 cts	51 72
Excavation on 123 chains, av depth 4.1 feet, 5841 cubic yards, at 8 cents	507 28

Embankment at both ends of bridge on 3.37 chains,	
1356 cubic yards at 10 cents	135 60
Bridge over ravine 289 feet	1,948 78

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 4,770 78

*Mile 38th.* Is traced along a gentle sloping side hill, and ends on east side of a ravine, passed with a balustrade bridge; soil, micaceous, slate.

Excavation on 8.20 chs. av depth 4.5 ft, 2746 c y at 8 cts	219 68
do on 46 chs, 2082 c yards at 6 cents	124 92
do on 14½ chs, av depth 3.1 ft, 3278 c y at 8 cts	262 24

Embankment at east and west end of bridge on 2.70 ch,	
1083 cubic yards at 10 cents	108 50

Excavation on 60 links, av depth 7.8 ft, 382 c yds at 7 cts	26 74
Bridge 303 feet	2,019 82

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 2,761 90

*Mile 39th.* Is located on a rough side hill, and passes Buck run with a truss bridge, where it leaves the valley, then crossing West Chester road, pierces Buck run and Brandywine summit 33 feet; this cutting was imperfectly sounded, but has the appearance of containing lime stone.

Excavation on 10.39 chains, av depth 9.4 ft, 8356 cubic yards at 8 cents	668 48
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Embankment at east and west end of Buck run bridge, on 2.09 chains, 1136 cubic yards at 10 cents	113 60
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Excavation on 9.85 chs, av depth 15.4 feet, 15,071 cubic yards at 8 cents	1,203 68
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Excavation on 16.30 chs. and filling at West Chester road, 2542 cubic yards at 7 cents	177 94
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Cutting at Buck run and Brandywine summit on 50.61 chains, greatest depth 33 ft, av depth 18½ ft, 60,413 cubic yards, at 13 cents	7,853 69
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Bridge over Buck run 472 feet	11,898 56
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Culvert 3 feet	60 00
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 21,977 95

*Mile 40th.* Re-crosses the Great Valley along the east side of Buck run summit, and gains the south side of the Northern Valley hill, after which it is traced upon favorable ground; soil, loam and loose stones.

Embankment on 2.09 chains, av depth 4.4 ft, 1603 cubic yards at 10 cts	260 50
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Excavation on 2 chains, average depth 8.6 feet, 1433 cubic yards, at 7 cents	100 31
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Embankment on 9.60 chains, av depth 4.3 ft, 2681 cubic yards, at 11 cents	294 91
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Excavation on 12½ chs, av depth 3 ft, 2659 c yds at 7 cts	186 06
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do on 12 chs, av depth 3.5 ft, 3064 c yds at 8 cts	245 12
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Embankment on 9 chs, av depth 2.3 ft, 1246 c y at 10 cts	124 60
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Excavation on 8½ chs, av depth 3 ft, 1850 c yd at 7 cts	130 25
Embankment on 3.11 chs, av depth 2.6 ft, 481 c y at 10 cts	48 10
Two culverts of 3 and 4 feet	140 00

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1,529 80

*Mile 41st.* The line is located along side hill of North Ridge, over undulating ground; soil, same as last.

Embankment on 7.89 chains, av depth 5.5 feet, 290 c yds at 10 cts	290 90
Excavation on 9½ chs, av depth 5 ft, 5551 c y at 8 cts	281 08
Embankment on 6 chs, av depth 9 10 ft, 503 c y at 8 cts	24 72
Excavation on 23½ chs, av depth 3.4 ft, 5752 c y at 8 cts	460 16
Embankment on 12½ chs, av depth 3 3 ft, 546 c y at 10 cts	254 60
Excavation on 8 chs, av depth 8.4 ft, 5383 c y at 8 cts	446 64
Embankment on 3.61 chs, av depth 4.6 ft, 1082 c y at 10 cts	108 20
Two culverts of 4 feet	160 00

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2,029 80

*Mile 42d.* Commences at Fiala's still house, and is traced on favorable sloping ground to Rock run, which it passes with a balustrade bridge, after which the ground is undulating, crosses Philadelphia and Lancaster pike; soil, loam.

Embankment on 7.80 chs, av depth 9.2 feet, 5503 c y at 12 cts	660 36
do on 5½ chs, av depth 2.1 ft, 683 c y at 0 cts	68 50
Excavation on 19½ chs, av depth 3.6 ft, 5,94 c y at 8 cts	40 52
Embankment at west end of bridge at Rock run on 5.0 chs, depth 13 feet, 8112 c yards at 12 cents	577 04
do at east end of do on 0.50 chs, 102 c y at 9 cts	9 18
Excavation on 17 3¼ chs, av depth 8.7 ft, 12,555 c yards at 9 cents	1,132 47
Embankment on 4.20 chs, av depth 2.5 ft, 577 c y at 10 cts	57 70
Excavation on 2 36 chs, av depth 3 8 ft, 654 c y at 7 cts	45 78
Embankment on 4 36 chains, av depth 6.2 feet, 1818 c y at 10 cents	181 80
Excavation on 1.21 chs, av depth 5 9 ft, 797 c y at 8 cts	63 76
One bridge of 152 ft. at Rock run	1,252 90
Two culverts of 5 and 3 feet	180 00

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4,433 81

*Mile 43d* Crosses Little Brandywine with a truss bridge 69 feet in height, and is then located on easy sloping ground, passing north of Coatsville; soil, loam.

Excavation on 1.42 chs, av depth 2 9 ft, 293 c y at 7 cts	20 51
Side embankment on 2 90 chs, 189 c y at 9 cts	17 01
Excavation on 8.12 chs, av depth 7.4 ft, 4818 c y at 9 cts	433 62



Embankment at east and west ends of Little Brandywine bridge, 3 2 c y at 11 cents	31 50
Excavation on 6.78 chs. av depth 14.6 ft, 9656 c y at 8 cts	772 48
Embankment on 5.40 chs. av depth 3.3 ft, 1089 c y at 11 cts	108 90
Excavation and embankment on 38.5 chs, 1995 c yards at 7 cents	201 72
Little Brandywine bridge 847 feet	23,508 74
One culvert 4 ft, and 1 under drain	95 00
	<hr/>
	51,197 18

*Mile 44th.* Is traced on very favorable ground, crossing the Great Valley, and ends on east side of Gardiner's Ridge; soil, loam.

Excavation and embankment on 55.6 chs, 2256 c yards at 7 cts	157 92
Embankment on 7 chs, av depth 3.8 ft, 1678 c y at 11 cts	184 58
Excavation on 21 chs, av depth 2 ft, 1509 c y at 7 cts	111 53
Embankment on 10 chs, av depth 2.5 ft, 1478 c y at 10 cts	147 80
Excavation on 13.47 chs, av depth 3 ft, 2872 c y at 8 cts	229 76
Two culverts of 5 and 4 feet	2 0 00
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	1,031 99

*Mile 45th.* Located on gentle sloping ground, crossing Philadelphia and Lancaster pike. Soil same as above.

Excavation and embankment on 80 ch, 5,700 c yards at 7 cents	399
One under drain	15
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	414

*Mile 46th.* Is traced along south side of Philadelphia and Lancaster pike, on good ground. Crosses a small run with a culvert. Soil same as last.

Excavation and embankment 69.53 chs, 3,470 c yards at 7 cents.	242 90
Excavation on 10.47 chs, av dep 4.2 ft, 3,202 c yards at 8 cents	556 16
One culvert 3 feet	60
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	559 06

*Mile 47th.* Located on similar ground to the last—crosses two small runs.

Excavation and embankment on 30 chs, 6,529 cubic yards at 7 cents	457 03
Two culverts of 4 feet	160
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	617 03

**Mile 48th.** This section near commencement passes through Gallagher's ridge at Gallagher-ville, (lime stone at 5 feet below surface.) then is traced for a few chains on favorable ground, after which it pierces a ridge of solid limestone, depth 7.3 feet, and ends near a small run.

Embankment on 9 chs, av dep 8.10 ft, 406 c yds at 8 cts	32 48
Excavation at Gallagher's on 15.80 chs, av dep 8.1 feet	
10,575 cubic yards at 9 cents	951 73
Excavation on 9.40, x section, 189 cu yds at 6 cents	11 22
do on 15.50 chs, av dep 5.9 ft, 4,392 c yds at 8 cts	351 36
do on 12 chs, double drain, 117 c yds at 6 cents	7 02
do on 13 chs, av dep 2.8 ft, 2,632 c yds at 7 cents	184 24
Embankment on 5.47 chs, av dep 2.6 ft, 666 c yds at 10 cts	86 60
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	1,494 67

**Mile 49th** Is located generally on very good ground, piercing a small ridge  $7\frac{1}{2}$  feet, (rock at  $2\frac{1}{2}$  ft.) until it reaches J. Hunt's ridge, which it passes 22 feet under—ends near centre of B. Wine bridge—crosses Philadelphia and Lancaster turnpike.

Embankment on 2.53 chs, av dep 3.4 ft, 552 c yds at 10 cts	53 20
Excavation on 10 chs, av dep .8 ft, 608 c yds at 6 cts	36 48
Embankment on 7 chs, av dep 1 ft, 578 c yds at 8 cts	50 24
Excavation on 6 chs, av dep 4.8 ft, 2,159 c yards at 8 cts	171 12
Embankment on $7\frac{1}{2}$ chs, av dep 3 ft, 1,384 c yds at 10 cts	138 40
Excavation on 11 chs, av dep .9 ft, 724 c yds at 6 cts	44 32
do on 20 chs, av dep 8 ft, 13,074 c yds at 13 cts	1,699 62
Embankment on 4.70 chs, av depth 1.6 feet, 429 cubic yards at 10 cents	42 90
Bridge over the Big Brandywine 1,413 ft	14,684 22
One culvert 4 feet	80
	<hr/>
	16,980 70

**Mile 50th** Passes Big Brandywine with a bridge partly truss and partly balustrade, after which it crosses a hollow requiring another bridge. Then is traced on favorable sloping ground.

Embankment on $1\frac{1}{2}$ chs, dep 11.3 ft, at east end of Brandywine bridge, 476 c yards at 12 cents	57 12
Embankment at east and west end of bridge over ravine on 7.27 chs, depth 12 ft, 3,456 c yards at 14 cts	483 84
Excavation on 8 chs, x sec. 1.5 sq, 173 c yds at 6 cts	10 36
do on 14 chs, dep 2.9 ft, 1,979 c yds at 8 cts	158 32
Embankment on 20 chs, av dep 2.1 ft, 2,506 c yards at 10 cents	250 60
Excavation on 3.37 chs, x sec. 1.2 sq, 60 c yards at 5 cts	3 60
Bridge over ravine 363 ft	2,194 24
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	3,158 10

# CANAL REPORT.

*Mile 51st.* Is triced at commencement on favorable ground, it enters Baldwin's ridge 26 feet under (limestone rock at 14 feet) terminates at end of point of solid rock which is pierced at 11.6 feet in depth, both affording good building stone.

Excavation and embankment on 2,893 chs, 910 c yards at 7 cents	67 76
Excavation at Baldwin's summit on 30.20 chains, average depth 14.3 feet, 41,770 c yards at 13 cents	5,430 10
Embankment on 10.07 chs, av dep 3.2 ft, 2,018 c yards at 10 cents	201 80
Excavation on 8.93 chs, average depth 6.3 feet, 4,370 c yards at 10 cents	437
Culvert 3 feet	60
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	6,192 60

*Mile 52d.* This section crosses Boot road, with a small truss bridge, then passes Valley creek with a considerable excavation on west side, afterwards the ground is more favorable, but in general rough; soil slate and gravel.

Embankment on 7.20 chains, average depth 6.5 ft, 3,263 yards at 11 cents	358 93
Excavation on 10.73 chains av depth 11.4 feet, 10,950 c yards at 9 cents	985 50
Embankment at east and west ends of bridge over Valley creek on 2.04 chains, 812 c yards at 10 cents	81 20
Excavation on 1.42 chs, av depth 4 feet, 586 c yards at 7 cents	41 03
Embankment on 3.16 chs, average depth 4.9 feet, 1,017 cubic yards at 10 cents	101 70
Excavation on 5 chains, av dep 3.3 ft, 1,204 c yds at 7 cts	84
do on 18 chains; 1 sec. 31 sq yds, 65 c yds at 9 cts	38 10
Embankment on 3 chs, dep 1.9 ft, 162 c yds at 8 cents	12 96
Excavation on 10.93 chs, av depth 4.5 ft, 3,695 c yards at 8 cents	295 60
Bridge over Valley creek 567 feet	13,719 41
Two bridges of 64 and 32 feet at \$888 and 456	1,344
	<hr/>
	17,062 42

*Mile 53d,* Is located along the sloping side hill of South Valley ridge, passing in its course several considerable ravines.

Embankment at east and west ends of bridge & ravine on 5.86 chs, 2,452 cubic yards at 10 cents	245 20
Excavation on 12.80 chs, av dep 2.9 feet, 2,649 c yds at 8 cents	211 22
Embankment at east and west ends of bridge on 8.90 chs, 3,610 c yards at 10 cents	361
Excavation on 7.75 chs, av dep 3.3 feet, 1,872 c yards at 8 cents	149 3

## CANAL REPORT.

Embankment on 6 chs, dep 2 ft, 342 c yds at 9 cents	30 78
Excavation on 14 chs, av dep 1.4 ft, 1,442 c yds at 7 cts	100 94
Embankment on 7.2½ chs, av dep 8.1 ft, 4,280 c yds at 12 cents	513 60
Bridge over ravine 620 feet	3,802
do over ravine 290 feet	1,941 60
do over Boot road 32 feet	749 28
	<hr/>
	8,106 02

*Mile 54th* passes over a gentle sloping side hill, crosses one small ravine.

Embankment on 3.23 chains, average depth 8.3 feet, 2001 cubic yards at 12 cents	240 12
Excavation on 9.90 ch, av dept 2.6 ft, 1827 c yds at 7 cts	127 89
do and embankment on 47.30 chains, 2422 cubic yards at 7 cents	169 54
Embankment on 10.41 ch, av dep 7.5 ft 5624 c y at 11 cts	618 64
Excavation on 5.77 ch, av dep 3.1 ft, 1286 c yds at 8 cts	102 18
Bridge 16 feet	388 71
	<hr/>
	1,647 78

*Mile 55th* pierces at commencement a ridge 18 ft at apex: then is traced on gentle side hill, and terminates at eastern abutment of bridge over ravine.

Excavation on 15.73 ch, av dep 12.9 ft, 18956 cubic yards at 11 cents	2085 16
Embankment on 12 ch, av dep 2 ft, 1424 c yds at 9 cts	128 16
Excavation on 28.30 ch, av dep 3½ ft, 7262 c yds at 8 cts	580 96
do on 5.90 ch, av dep 3 ft, 1266 c yds at 7 cts	88 62
Embankment on 5.44 chs at west end of bridge over ravine 2233 cubic yards at 10 cents	223 30
Bridge 590 feet	3,685 27
	<hr/>
	6,801 47

*Mile 56th.* This section passes over in general very undulating ground, piercing at end a ridge 18 feet in depth, 3½ feet clear of rock.

Embankment at east end of bridge on 8.75 chains, 3299 cubic yards at 12 cents	395 88
Excavation on 8 ch, depth 1.9 ft, 340 c yds at 7 cts	23 80
do on 6.60 ch, av dep 6.7 ft, 3478 c yds at 8 cts	278 24
Embankment on 7.40 ch, av dep 1.8 ft, 794 c yds at 9 cts	71 46
do on 9.20 ch, av dep. 3.9 ft, 2251 c yds at 10 cts	225 10
Excavation on 9 ch, av dep 1.5 ft, 979 c yds at 7 cts	68 53
Embankment on 7.40 ch, dep 1.6 ft, 334 c yds at 9 cts	30 06
Excavation on 19.57 ch, av dep 10.8 ft, 18,564 c y at 11 cts	2,042 04
Culvert 4 feet and under drain	95 00
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	3,230 11

*Mile 57th* crosses the dividing ridge of the waters of Schuylkill and Brandywine, south of steam boat tavern, ground in general rough. Passes main branch of East Valley creek.

Embankment on 22.29 chains, average depth 8.1 feet, 13,328 cubic yards at 12 cents	1,599 36
Excavation on 8.5 ch, av dep 6 ft, 8939 c yds at 8 cts	315 12
Embankment at east and west end of bridge, on 10.19 chains, 4,256 cubic yards at 11 cents	464 75
Excavation on 8 ch $\times$ section 1.7 yards square, 167 cu- bic yards at 6 cents	11 22
do on 19.77 ch, av dep 4 ft, 5728 c yds at 8 cts	458 24
Bridge 32 feet	725 60
do over run 413 feet	2,691 54
	<hr/> 6,265 83

*Mile 58th* is traced along a gentle side hill, crosses two ravines with culverts; the line generally passes over good ground—soil micaceous slate.

Excavation and embankment on 1370 chains, 899 cubic yards at 7 cents	62 93
Embankment on 17 ch, av dep 4.2 ft, 4617 c yds at 11 cts	507 87
Excavation on 11 ch, av dep 2.4 ft, 1911 c yds at 7 cts	133 77
Embankment on 8.5 ch, av dep 3 ft, 4195 c yds at 12 cts	503 40
do on 6.5 ch, av dep 2.5 ft, 984 c yds at 10 cts	98 40
Excavation on 18.5 ch, av dep 5.8 ft, 8291 c yds at 9 cts	746 19
Embankment on .77 ch, av dep 2.7 ft, 125 c yds at 9 cts	11 25
Two culverts 4 and 5 feet	210 00
	<hr/> 2,273 81

*Mile 59th.* This section is traced on a very rough side hill, passing four ravines, with two truss and two balustrade bridges—ends near centre of the fourth—soil same as above.

Embankment at east and west ends of bridge on 2.48 chains 1220 cubic yds at 10 cents	122 00
Excavation on 5.45 ch, av dep 5.6 ft 2321 c yds at 8 cts	185 68
do on 11 ch, av dep 3.7 ft, 2929 c yds at 8 cts	234 32
Embankment at east and west ends of bridge on 3.90 ch, 1561 cubic yards at 10 cents	156 10
Excavation on 9½ ch, av dep 3.3 ft, 2310 c yds at 8 cts	184 80
Embankment on 4.03 ch, av dep 2.3 ft, 265 c yds at 9 cts	23 67
Excavation on 7.20 ch, av dep 4.5 ft, 2418 c yds at 8 cts	193 44
Embankment on 1.65 ch, av dep 5.9 ft, 670 c yds at 10 cts	67 00
Excavation on 12 ch, av dep 5.5 ft, 5983 c yds at 8 cts	478 64
Embankment at west end of bridge on 1.80 chains. 356 cubic yards at 10 cts	35 60
Four bridges of 400, 131, 224 and 360 feet at \$ 10,990 50	
2,235 78, 5,816 23 and 12,687 68	50,730 19
	<hr/> 32,411 44

*Mile 60th* commences in a ravine, where the line leaves the valley and passes over very rough ground, piercing in its course two ridges, twenty-four and twenty feet in depth—soil micaceous slate, affording good material for the horse path.

Embankment at east end of bridge on 1.75 chains, depth 14 feet, 750 cubic yards at 10 cents	75 00
Excavation on 13 ch, av dep 14.7 ft, 18,752 c y at 12 cts	2,250 24
do on 6.33 ch, av dep 8.3 ft, 1028 c yds at 7 cts	71 96
Embankment on 7.50 ch, av dep 5 ft, 2500 c yds at 10 cts	250 00
Excavation on 1.20 ch, dep 2.9 ft 188 c yds at 6 cts	11 28
Embankment at east and west end of bridge on 9.26 ch, 2511 cubic yards at 10 cents	251 10
Excavation on 7.5 chains, av dep 14.8 ft, 10,905 c yards at 11 cents	1,199 55
Embankment on 4.75 ch, av dep 5.5 ft, 1030 c yds at 10	103 03
Excavation on 4.25 ch, av dep 2 4 ft, 724 c yds at 7 cts	50 68
Embankment on 6.16 ch, av dep 7 ft, 5061 c yds at 10 cts	506 10
Bridge of 203 ft	1,796 00
Two culverts of 3 and 4 ft and one under drain	155 00
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	6,519 91

*Mile 61st.* This section is traced along summit of Valley Ridge on favourable ground, crosses one small ravine near Dempsey's. The line passes between Green Tree tavern and barn—ends on north edge of Philadelphia and Lancaster pike.

Excavation on 88 links, av dep 3.3 ft, 209 c yds at 7 cts	14 65
Embankment on 5.55 chs, depth 7.8 ft, 1,499 cubic yards at 11 cents	158 29
Embankment on 1.55 chains, av depth 1.4 feet, 122 cubic yards at 10 cents	12 20
Excavation on 13.13 chains, av depth 2.6 feet 2382 cubic yard at 8 cents	190 56
Embankment on 9 chains, depth 5.7 feet, 996 cubic yds at 10 cents	99 60
Double drain on 17 chains 166 cubic yards at 6 cents	9 96
Embankment on 5 chs, depth 2.6 ft, 377 c. y. at 10 cents	57 70
Excavation on 7 chs, depth 3.8 ft, 963 cubic yds at 7 cts	67 41
Embankment on 3 chs, depth 2.8 ft, 66 cub yds at 9 cts	5 94
Excavation on 13½ chs, depth 1.5 feet, 1392 cubic yards at 9 cents	97 44
One under drain	15 00
	<hr/>
	\$ 708 75

*Mile 62d.* Is located on ground slightly undulating of easy excavation, passes between Paoli tavern and barn, ends on the west side of Darby road, south of turnpike.

Excavation and embankment on 13½ chains, 85½ cubic yards at 7 cents	59 57
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# CANAL REPORT.

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Excavation on 10½ chains, av depth 3.3 feet, 2485 cubic yards at 8 cents	198 80
Embankment on 6½ chains, av depth 4.7 feet, 2002 cubic yards at 11 cents	220 22
Excavation on 9 chs, av depth 5.3 feet, 3619 cubic yards at 8 cents	289 52
Embankment on 9½ chains av depth 6.7 feet 4448 cubic yards at 11 cents	489 28
Excavation on 4,90 chains depth 3½ feet, 621 cubic yds at 7 cents	43 47
Embankment on 9½ chains av depth 3.1 feet, 1811 cubic yards at 10 cents	181 1
Excavation on 11.35 chains av depth 4.2 feet, 3486 cubic yards at 8 cents	278 88
One culvert 4 feet	80 00
Two under drains	28 00
	<hr/>
	\$ 1,868 84

*Mile 63d.* Passes between general Jackson tavern and barn, thence in front of Bear inn, after which it continues along north edge of pike about three-fourths of a mile, ends near Mrs. Robinson's inn; soil loam and clay.

Excavation on 8.35 chains av depth 4.1 feet, 2548 cubic yards at 8 cents	203 84
Do. on 6.65 chains, av depth 2.8 feet, 382 cubic yards at 7 cents	26 74
Embankment on 18.65 chs, av depth 4.3 feet, 5215 cubic yards at 12 cents	625 80
Excavation on 46.35 chs, av depth 7.10 feet, 2415 cubic yards at 7 cents	169 05
One under drain	14 00
	<hr/>
	\$ 1,039 43

*Mile 64th.* Crosses the turnpike near its commencement at the 17th mile stone, then turning a projecting point of ridge is traced over favourable ground, terminating in garden of A. Potter, south of Reesville, soil as above.

Excavation on 11.35 chains av depth 2.2 feet 1794 cubic yards at 7 cents	129 58
Excavation and embankment on 14 chains 642 cubic yds at 7 cents	45 43
Excavation on 15½ chains, av depth 5 feet, 5862 cubic yds at 8 cents	468 96
Embankment on 8½ chains, av depth 3.4 feet, 1778 cubic yards at 10 cents	177 80
Excavation and embankment on 14 chains, 731 cubic yds at 7 cents	51 17

Excavation on 9½ chains, depth 7.6 feet, 2740 cubic yds at 8 cents	219 68
Embankment on 3½ chains, depth 1.3 feet, 127 cubic yds at 9 cents	11 49
One under drain	14 00

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\$ 1,114 05

*Mile 65th.* This section pierces at beginning a ridge of easy excavation near Drove tavern, passing 20 feet under P. and L. turnpike at 16th milestone, thence is located in the rear of Spring tavern (sign of Washington) and recrossing turnpike, passes two ravines with culverts, soil micaceous slate, loam and gravel.

Excavation at Reesville on 18.65 chs, av depth 18.1 feet 3587.2 cubic yards at 12 cents	4,504 64
Embankment on 8.28 chs, av depth 4.4 ft, 2864 cubic yds at 10 cents	256 40
Excavation on 12.08 chains av depth 3.3 feet 2887 cubic yards at 8 cents	230 96
Embankment on 9.30 chains, av depth 8.9 feet 6249 cubic yards at 12	749 88
Excavation on 9½ chs, av depth 9.5 feet 7689 c y at 9 cts	692 04
Embankment on 8.54 chs, av depth 11.70 feet, greatest depth 24.2 feet 7878 cubic yards at 14 cents	1,102 92
Excavation on 6.21 chs, av depth 13.4 ft 7892 c y at 9 cts	710 28
Three culverts of 6, 5 and 3 feet	465 00

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\$8492 09

*Mile 66th.* The first part of the line is traced over undulating ground, crossing Lamb tavern ravine with a balustrade bridge, after which the surface of the ground assumes a more even character and after passing behind Mrs. Henderson's house, it crosses the P. and L. pike and ends on west side of old Lancaster road.

Excavation on 4.35 chs, av depth 5.6 ft, 1849 cubic yds at 8 cents	147 92
Excavation and embankment on 10 chs, 1604 c y at 8 cts	128 32
Embankment at east and west end of bridge over ravine on 7.97 chs, depth 14 feet 2760 cubic yds at 11 cents	303 60
Excavation on 9.5 ch, av dep 5.6 ft, 4084 c yds at 8 cts	326 72
Excavation & embankment on 39.65 ch, 4031 c y at 7 cts	282 17
Bridge 297 feet	2,219 24
Two under drains	280 00

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3,435 90

*Mile 67th.* The beginning of this section crosses the old Lancaster road, it is then traced along a gentle side hill, intersecting a ravine near Mrs. Grover's, and passing through her garden crosses the dividing ridge of the waters of Gulf run and a branch of Darby creek, it terminates near Siter's lane; soil loam and clay.

Embankment on 2.95 chs, av depth 4.2 feet 789 cubic yards at 10 cents	78 90
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# CANAL REPORT.

107

Side cutting on 12 chs, 907 cubic yds at 6 cents	12 48
Excavation on 13 chs, av depth 3.1 ft, 2933 c y at 7 cts	205 31
Embankment on 9.70 chs, av depth 4.3 feet, 2648 cubic yards at 12 cents	317 76
Embankment on 144 chs av depth 2.8 feet 2459 cubic yds at 11 cents	270 49
Excavation on 15.77 chs, $\times$ section 1.5 sq. 338 cubic yds at 6 cents	20 28
Excavation on 9.15 chs, av depth 2.3 ft, 1477 c y at 7 cts	103 39
One culvert 6 feet and one under drain	210 00

\$ 1218 55

*Mile 68th* Is located on the dividing ridge over very favorable ground, and passing Mrs. Abram's house, it crosses Moul's ravine with a balustrade bridge—ends near R. Kimber's, a few chains north of the turnpike. Soil, loam.

Excavation on 9.85 chs, av dep 3 ft, 2,111 cu yds at 8 cts	168 88
Embankment on 7½ chs, av dep 3 ft, 1,391 c yds at 10 cts	139 10
Excavation on 13.5 chs, av dep 3.1 ft, 2,980 c yds at 8 cts	238 40
Side cutting on 9 chs, $\times$ sec 1.2 sq, 164 c yds at 6 cts	9 84
Excavation on 4 chs, depth 3.6 feet, 522 c yds at 7 cents	36 54
Embankment at east and west end of bridge over Maul's ravine on 5.55 chs, dep 14 ft. 2,260 c yds at 11 cents	249 15
Excavation on 7.68 chs, av dep 2.6 ft, 1,408 c yds at 7 cts	98 56
Embankment on 7.70 chs, dep 2.5 ft, 557 c yds at 10 cts	55 70
Moul's bridge 558 feet	3,697 27
Two under drains	28

4,721 44

*Mile 69th.* Is traced on a favourable side hill, crossing the intersection of King of Prussia and Gulf mill roads.

Excavation on 7.53 chs. dep 5.6 ft, 1636 c yds at 8 cts	130 88
Embankment on 8.55 chs. dep 3 8 ft 974 c yds, at 10 cts	97 40
Excavation on 20 ch, av dep 3.3 ft 4803 c yds at 9 cts	432 27
Excavation and embankment on 38 ch 2986 c yds at 7 cts	209 02
Excavation on 5.15 ch, av dep 6.7 ft 2714 c yds at 8 cts	217 12
Two under drains	28 00

\$1,114 69

*Mile 70th.* The first part of this line passes over an uneven side hill, then crossing a branch of Darby creek, enters Rudolph ridge which it pierces 19.8 feet. Soil easy excavation.

Excavation on 8 ch, av dep 6.3 feet 3956 c yds at 8 cts	316 48
Embankment on 5.83 ch, dep 3 feet 513 c yds at 10 cts	51 30
Embankment on 9.85 ch, dep 8.9 ft 6511 c yds at 12	781 32
Excavation on 5.40 ch, av dep 2ft 784 c yds at 7 cts	54 88
Excavation and embankment on 10 ch, 232 c yds at 7 cts	23 24
Embankment on 8 ch, av dep 8.1 ft 4746 c yds at 12 cts	569 52
Excavation on 9½ ch, av dep 6.6 ft 4927 c yds at 8 cts	394 16

## CANAL REPORT.

Excavation on 20.15 ch, part of Rudolph's ridge av dep	3,701 88
13.8 26,442 c yds at 14 cts	245 00
Two culverts of 8 and 6 ft	
	<hr/> 6,187 78

*Mile 71st* Is located on undulating ground, crossing county line Road. Soil loam, &c.

Excavation on 17.85 chs, av dep 3.4 ft 4587 c yds at 9 cts	394 83
Excavation and embankment on 10.90 ch 174 c yds at 7 cts	33 18
Embankment on 10.10 chs, av dep 4.7 ft 3180 c yds at 10 cts	313 00
Excavation on 14 chs, av dep 6.9 ft 7690 c yds at 8 cts	615 20
Embankment on 4½ ch. dep 5.7 ft 809 c yds at 9 cts	72 81
Excavation on 6½ ch, av dep 4.4 ft 2203 c yds at 7 cts	154 21
Embankment on 5½ ch dep 8.6 ft 1676 c yds at 10 cts	167 60
Excavation on 4.90 ch, av dep 4.5 feet 1622 c yds at 7 cts	113 51
One culvert 1 ft and one under drain	94 00
	<hr/> 1,958 37

*Mile 72d* The line near its commencement crosses a break in the dividing ridge 20 feet in depth, then passes P. and L. Turnpike and intersects the old Lancaster road at the Union Tavern. It ends on N. side of Haverford road.

Embankment on 18.45 ch, av dep 11.4 ft 17,163 c yds at 15 cts	2,574 43
Excavation on 6.40 ch, av dep 1.4 ft 650 c yds at 7 cts	45 50
Embankment on 16.60 ch, av dep 3.8 ft 4037 c yds at 11 cts	444 07
Excavation on 9.90 ch, av dep 5.2 ft 3991 c yds at 8 cts	319 28
Embankment on 1.50 ch, dep 3.5 ft 145 c yds at 9 cts	13 05
Excavation on 7.70 ch av dep 6.6 ft 3996 c yds at 8 cts	319 68
Embankment on 7.50 ch av dep 3.4 ft 1582 c yds at 10 cts	158 20
Excavation on 6.15 ch, av dep 4.4 ft 2004 c yds at 8 cts	160 32
One culvert 3 ft and one under drain	73 00
	<hr/> 84,107 55

*Mile 73d* This section is traced over an undulating ground, south of the Buck-tavern, and terminates on the west side of Price's Ravine.

Excavation and embankment on 7.85 ch, 420 c yds at 8 cts	33 60
Excavation on 16½ ch dep 4.3 ft 2518 c yds at 8 cts	201 44
Double drain on 7½ ch, 75 c yds at 6 cts	4 50
Embankment on 7½ ch av dep 4.9 ft 2521 c yds at 11 cts	277 31
Excavation on 16 ch av dep 7 ft 8879 c yds at 9 cts	799 11
Excavation on 22.15 ch av dep 9.1 f, 1718 c yds at 9 cts	1 540 62
One culvert of 5 feet	135 00
	<hr/> 82,901 59

# CANAL REPORT.

156

*Mile 74th* At the beginning the line crosses a ravine with a gallustrade bridge, after which it passes over favourable ground.

Excavation on 1.87 ch, av dep 3.4 ft 462 c yds at 8 cts	36 26
Embankment at east and west end of bridge over ravine	
10.54 ch, dep 14 ft 3975 c yds at 11 cts	437 23
Excavation on 5.58 av ch dep 2.7 ft 1062 c yds at 7 cts	74 34
Embankment on 18.42 ch, av dep 4.6 ft 5539 c yds at 12 cts	664 66
Excavation on 13 ch, av dep 3.4 ft 3179 c yds at 8 cts	224 32
Embankment 11.65 ch, av dep 2½ ft 1720 c yds at 10 cts	172 10
Bridge of 462 ft	3,122 35
Under drain	14 00

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84,775 90

*Mile 75th.* After crossing the old Lancaster road it is traced on favourable ground north of widow Jones'. Soil clay and gravel.

Excavation on 9.75 ch, av dep 3.3 ft 2350 c yds at 8 cts	188 00
Embankment on 16.60 ch, av dep 3½ ft 3638 c yds at 11 cts	400 18
Excavation on 11 ch, av dep 2.7 ft 2101 c yds at 7 cts	147 07
Embankment on 4 ch, av dep 1.3 ft 285 c yds at 9 cts	25 65
Excavation on 23 ch, av dep 4.7 ft 8111 c yds at 8 cts	648 88
Embankment on 10.15 ch, av dep 1.4 ft 826 c yds at 9 cts	74 34
Culvert of 3 ft	65 00

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81,549 12

*Mile 76th.* Commences at old Lan. Road, and passing South of Libertyville on even ground, it terminates a few chains south of Merion Meeting House, soil as above.

Excavation on 10.85 ch, av dep 4½ ft 3659 c yds at 8 cts	292 72
Excavation on 7 ch, dep 2 ft 519 c yds at 7 cts	36 33
Embankment on 9 ch, av dep 3.2 ft 1770 c yds at 11 cts	194 70
Excavation on 24½ ch, av dep 3.1 ft 5492 c yds at 8 cts	439 39
Embankment on 4 ch, dep 2 ft 228 c yds at 9 cts	20 52
Embankment on 8 ch, dep 5 ft 1239 c yds at 10 cts	123 90
Embankment on 8 ch, dep, 3.6 ft 859 c yds at 10 cts	85 90
Double drain on 5.15 ch, 50 c yds at 6 cts	8 00

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81,196 43

*Mile 77th,* Crosses a small ravine in front of the General Wayne tavern, and then follows the course of the old Lancaster road, which it leaves at the seven mile stone, thence diverging north-eastwardly, it pierces a ridge 14 feet deep at the apex.

Embankment on 11.55 ch, av dept 4.2 ft, 3093 c yds at 12 cts	371 16
Excavation on 10½ ch, av dept 7.3 ft, 5989 c yds at 8 cts	479 12
do on 2½ ch. dept 3.6 ft, 357 c yds at 7 cts	24 90
Embankment on 8.02 ch dept 9 ft, 971 c yds at 10 cts	97 10

Excavation on 6.63 ch, av dept 5.4 ft, 2481 c yds at 8 cts	198 48
Embankment on 9 ch, dept 4½ ft, 1238 c yds at 10 cts	123 80
Excavation on 30.15 ch, av dept 7.8 ft, 19,105 c yds at 9 cts	1719 45
Two culverts of 4 and 3 ft	155
	<hr/>
	3169 10

*Mile 78th*, Is traced over undulating ground and crosses the Falls Bridge road. Soil loam and clay.

Excavation on 12.35 ch, av dept 4.7 ft 4336 c yds at 8 cts	346 88
do on 8 ch, av dept 3.9 ft, 2277 c yds at 7 cts	159 39
Embankment on 11½ ch, av dept 4.9 ft, 3705 c yds at 11 cts	407 55
do on 9 ch, av dept 2.9 feet 1615 c yds at 10 cts	161 50
Excavation on 8 ch, av dept 9. ft, 6235 c yds at 8 cts	498 80
Embankment on 6½ ch, dept 10.9 ft, 2534 c yds at 11 cts	278 74
Excavation on 1 ch, av dept 5 ft, 376 c yds at 7 cts	26 32
Embankment on 3½ ch, dept 3.5 ft, 579 c yds at 9 cts	52 11
do on 1½ ch, dept 1.9 ft, 81 c yds at 8 cts	6 48
Excavation on 7.15 ch, av dept 4.7 ft 2496 c yds at 8 cts	199 68
Two under drains and one culvert 4 ft	118
	<hr/>
	\$3235 45

*Mile 79th*, This section near its commencement crosses Georges' ravine, then is traced on favorable ground to the head of the inclined plane.

Excavation on 7 ch, av dept 3 ft, 1507, c yds at 7 cts	105 49
Embankment at east and west ends of bridge over Georges' ravine on 3.15 ch, dept 1½ ft 1256 c yds at 10 cts	125 60
Excavation on 27.80 ch, av dept 4.7 ft, 9650 at 9 cts	868 50
Embankment on 2.39 ch, dept 1.4 ft, 94 c yds at 9 cts	8 46
Excavation on 11.61 ch, dept 4 ft, 1570 c yds at 7 cts	109 90
Embankment on 10.65 ch, av dept 3.9 ft, 2660 c yds at 10 cts	266
Excavation on 7 ch, av dept 2.4 ft, 1190 c yds at 8 cts	95 20
Bridge over Georges' ravine 300 ft	2219 24
	<hr/>
	\$3798 59

*Mile 80th*, Includes the inclined planes—a bridge across Schuylkill river and enters the bed of the old Union canal.

Excavation on 7.35 chains—average depth 8.9 feet, 5507 cubic yards at 8 cents	440 56
Embankment on 11 ch av dept 5.9 ft, 4411 c yards at 11 cents	485 21
Excavation on 8½ ch, av dept 14.7 ft, 12,210 c yds at 9 cts	1098 90
Embankment at west end of Schuylkill bridge, on 10½ ch, dept 23.3 ft, 19,237 c yds at 14 cts	2695 98

# CANAL REPORT.

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Excavation on 12 ch, 1308 c yds at 10 cts	130 80
Embankment on 5½ ch, dept 7.3 ft, 1318 c yds at 10 cts	131 80
Excavation on 7.37 ch, av dept 1 ft, 539 c yds at 7 cts	37 73
Schuylkill bridge, 965 ft,	
One culvert 3 ft and one under drain	75

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\$5,095 98

*Mile 81st, Occupies the bed and towing path of the old Union canal. There is rock which must be removed on this section.*

Excavation 11,616 c yds at 10 cts	1161 60
Embankment 345 c yds at 12 cts	41 49

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\$1203

*Mile 82d, Old Union canal:*

Excavation 7607 c yds at 15 cts	1141 5
Embankment 587 c yds at 10 cts	58 70
One culvert 3 ft	60

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\$1259 75

*Mile 83d, Diverges from old Union canal, enters Broad and intersects Vine street.*

Excavation 3411 c yds at 10 cts	341 10
Embankment 2398 c yds at 12 cts	281 76
One culvert 4ft	80

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\$703 86

## SUMMARY

*Of Eastern Division of Pennsylvania Railway.*

Mile 30	\$17,184 25
31	3,833
32	4,408 81
33	3,747 32
34	5,139 20
35	878 8
36	2,168 48
37	4,770 78
38	2,761 98
39	21,977 95
40	1,529 86

41	2,029 30
42	4,439 81
43	31,197 18
44	1,031 99
45	414
46	519 06
47	617 03
48	1,624 67
49	16,980 70
50	3,158 10
51	6,192 60
52	17,062 42
53	8,106 02
54	1,647 78
55	6,801 47
56	3,903 11
57	6,265 83
58	2,273 81
59	32,411 44
60	6,519 91
61	708 73
62	1,868 84
63	1,039 43
64	1,114 05
65	8,492 09
66	3,435 97
67	1,218 55
68	4,721 44
69	1,114 69
70	6,137 78
71	1,958 37
72	4,107 55
73	2,991 58
74	4,775 90
75	1,549 12
76	1,190 43
77	3,169 10
78	2,255 45
79	3,798 39
80	5,095 98
81	1,203
82	1,259 75
83	702 86

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284,811 45

Schuylkill bridge upon the principles of  
Town's patent

46,344 76

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331,156 21

# CANAL REPORT.

175

## GRADUATION TABLE.

Chains.	Ascending east.	Descending east.	Chains.	Ascending east.	Descending east.
1 30.24	27.5		39 31	Level.	
2 211.15		27.5	40 14	18	
3 21	27.5		41 61		28
4 12		27.5	42 207.50		29.2
5 92	27.5		43 17		28
6 7	level.		44 85		29
7 89	27.5		45 12	24	
8 9		20	46 4		24
9 48	24		47 9	24	
10 534.30		27.5	48 18		26
11 12.84		20	49 16	26	
12 11	10		50 17	24	
13 9		24	51 80	27.5	
14 8	level.		52 119		28
15 7		24	53 31	24	
16 4	16		54 13	level.	
17 9	24		55 45		24
18 27	16		56 8	26	
19 14		27.5	57 80		28
20 15	level.		58 6	level.	
21 10		27.5	59 13		26
22 17	27.5		60 17		16
23 245		27.5	61 11		24
24 13	27.5		62 4	level.	
25 160.10		27.5	63 13	26	
26 121	27.5		64 14		18
27 12	level.		65 118		30
28 44.60	27.5		66 7	level.	
29 666.40	28		67 8	26	
30 12		27.5	68 24		28
31 21	28		69 14		24
32 6.12	29.8		70 174		29.8
33 30		24.6	71 39.02	inc. plane.	4.5 p ch
34 30	24		72 12.12		29
35 7		26	73 13	20	
36 12	15		74 240.73		1.4
37 103.60		28	75 9.17		28
38 19	26				

Stone suitable for the construction of the bridges, culverts, &c. is found generally either on the line itself from the cuttings, or its neighborhood. The supply from the former being ascertained from such borings as could be effected, to be inadequate for our purpose, I have therefore in the estimate for excavations charged the same to the full depth as common earth, making up the deficiency, should rock be found, in the estimated price of that material in the other contingent parts of the rail-way.

I would respectfully suggest to the consultation of the board, the propriety of separating the contracts for road forming and laying the rails; so that the latter may embrace within its contract the broken stone and blocks on which the rails are to be placed.

The cost for grading and bridging upon the eastern division of the rail-way, has been considerably increased by the expense incurred on the new line from Coatsville to the summit in Thomas' field, which is an extent of nearly 18 miles.

The impracticability of finding last year any passage by which we could leave Chester valley from the white horse summit, to that on Mrs. Grove's land, rendered it then necessary that this section should be left open for future examinations; under such circumstances I could therefore only give, in order to close the estimate, its probable cost.

In the present location it has been a consideration of some importance to diminish distance; and when the amount of cost upon the whole line to gain this advantage did not extend to an unreasonable sum, I never hesitated to incur the expense.

The extent of the located line from Columbia to the seven mile stone, which as before observed, was the point at which the explorations of last year terminated, is about nine (9) miles shorter than the explored line. The value of this saving in distance, so far as regards its effect upon the diminution in time of transportation, more than compensates for the additional cost incurred for road forming.

The whole estimated expense last year for the rail-way, from Columbia to the seven mile stone, is stated in the report then made at \$1,013,019,  $\frac{1}{10}$  and the estimates for one mile of double way of \$8079,  $\frac{1}{10}$  (exclusive of road forming) according to the present reduced price of iron (the materials made use of being wood, iron and stone,) is amply sufficient for that construction.

I will now give for the information of the board, first, a comparative statement of the expense of the present location, with the explored line of last year as far as the seven mile stone where it terminated; and then the extension of the estimate to Vine street in Philadelphia, the materials for the rail way being of wood, iron and stone—secondly, the probable estimate where the construction of rail-way is of iron and stone, similar to the plan adopted in Great Britain.

1st. Comparative estimate to the 7 mile stone.	
Common road forming from Columbia to the 7 mile st.	\$388,127 07
Add for superintendence and other contingencies	38,812 70
	<hr/>
	426,939 77
To 73.55 miles of rail-way, the materials being iron, wood and stone at \$8079, $\frac{1}{10}$ pr. mile	594,249 45
To laying the rails upon bridges, materials of wood and iron	8,906 56
To one stationary steam engine at Columbia	6,000 00
	<hr/>
	\$ 1,036,095 76
To amount of estimate of the explored line to same point	1,013,019 13
	<hr/>
Balance against present location	23,076 63



# CANAL REPORT.

123

Estimate of the whole line from Columbia to Vine street in Philadelphia

Road forming from Columbia to Vine street

Add for contingencies

450,506 71  
43,050 67

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493,557 38

To 79.42 miles of rail-way, the materials being iron, wood and stone at \$8079,  $\frac{5}{100}$  pr. mile

641,676 27

To rails for the bridges, materials of wood and iron

10,066 16

Two steam engines, on Susquehanna and Schuylkill

14,000 00

Total amount of cost of the rail-way

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\$1,161,299 81

*Probable cost of rail-way, where iron and stone are only used.*

\* Iron rails (malleable) weight of rail per yard, 28lb. for double tracks, 88 tons per mile delivered at 65 dollars per ton

5,20 00

For sidelings

143 00

Cast iron chairs 18,267 tons at \$45  $\frac{7}{100}$  per ton

831 14

Iron pins to fix rails to chairs

86 00

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\$6,730 14

Add duty to U. S. at 25 per cent at val.

1,682 53

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8,412 67

Broken stone for paving horse path and embedding the block on which rails are placed

969 92

Blocks of stone and placing them, fixing rails, &c.

1,834 73

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2,804 65

Add for contingencies

280 46

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3,085 11

Total cost for a mile of rail-way

\$ 11,497 78

To 79.42 miles of rail-way at \$11,497,  $\frac{7}{100}$  per mile

913,143 69

To amount for bridges, using wooden rails plated with iron

10,066 16

To grading and bridging the road †

495,557 38

Carried forward

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1,418,767 22

\* The weight of 28 lb. per lineal yard for the malleable iron rail enables it to sustain the pressure of the locomotive steam engine, and still retain its original form without a permanent deflexion. Should horse power be considered as best adapted for propelling the rail way carriages in this country, a reduction of two or three pounds in the weight of the rail is estimated, may be safely made.

† Should the plan of forming the rail-way with iron and stone be adopted; this item may be reduced one twelfth as the space required in the cuttings for the other method may be diminished about four feet.

Brought forward	1,418,767 42
For two steam engines	14,000 00
	<hr/>
Total cost from Columbia to Philadelphia	\$1,432,767 42
Cost of road as above, using wood, iron and stone	1,161,299 81
	<hr/>
Difference between the two methods	\$ 271,467 42

But should the duty on iron for rail ways be remitted by the government the difference would be only \$137,841.<sup>75</sup>/<sub>100</sub>, neither of which in so great an undertaking, ought to be considered when the comparison is made between perishable and imperishable materials.

In approaching so large a city as Philadelphia with a railway, it is important that from some point in its neighborhood branch lines should be constructed, in order to accommodate the various commercial interests of that community, and to extend the whole benefit of such a line of communication with the interior, not only to the streets of a city, but also to the shipping.

Under such a view of the beneficial effect it might have in and around Philadelphia, I take the liberty of recommending to the board, that from the termination of the inclined plane, east of the residence of the late Judge Peters, a branch of the railway should be extended along the margin of Schuylkill river, terminating at a suitable place of deposit near the tide water, and opposite to the city of Philadelphia.

In concluding this report upon the location and estimate of the Pennsylvania railway, I beg leave to express the friendly disposition and assistance given me in promoting the objects of the survey, by the inhabitants of Columbia, the committee appointed by the select and common councils of the city of Lancaster, and its citizens generally, also the committees of various sections of Chester county, and of Philadelphia. I am likewise indebted to Mr. Scott, the principal assistant engineer, for his services in the field, and great accuracy in the delineations explanatory of this report, as well as to each of the individuals composing the locating and exploring corps, for ability, zeal and correct deportment.

All which is respectfully submitted.

JOHN WILSON,  
Engineer.

*Philadelphia, Dec. 1st, 1828.*

## No. 8.

*Report and estimate on the survey of a canal line, from Easton to Carpenter's point, by D. B. Douglass, Engineer.*

To JOSEPH McILWAINE, Esq.

*Secretary of the Pennsylvania board of canal commissioners.*

DEAR SIR,

I have the honor to communicate for the information of the board, the following calculations and estimates for a canal down the Delaware, from the vicinity of Carpenter's point to Easton, the route of which was explored and surveyed by the party under my directions, in the months of July and August last.

*Topographical character of the route.*

It will be remembered that the valley of the Delaware, within the limits of this survey, is bounded generally on both sides by ranges of high and steep hills, having an interval of alluvion or bottom land from a quarter of a mile to a mile and a half in width, through which the river winds its way. On a large proportion of the route, this interval is of the most favorable character and sufficiently wide on the Pennsylvania side, for the construction and safety of the canal; but in some places the river closes upon the *second bank*, or upon the slopes of the higher ground in such a manner as to require for the support of the canal, an artificial terrace and slope wall.

At three places in the course of the route, the river traverses distinct ranges of mountains. The first at Walpack bend, the second at the Water gap, and the third at the Wygaat mountain near Easton. Here the border of alluvion disappears altogether, the river is reduced to a narrow defile, and its shores become rocky and precipitous. Shores partaking in a less degree of this character, are also found in some other parts of the line. One or two instances of moderate extent occur between Walpack and the Water gap, and again somewhat more extensively between the latter and Easton. The rock in all cases is lime-stone or slate, except at the Water gap and the Wygaat, at the former of which it is chiefly sand stone, and at the latter, what would commonly be denominated granite. A small intermixture of sand stone is also seen at the upper commencement of Walpack bend.

Several tributaries of the Delaware intersect it, within the range of our survey, and furnish deep undulations and secondary valleys in the slopes of the primary one. As these valleys however, seldom run as low as the alluvial bottom of the latter, they offer no serious difficulty in the construction of the canal. The most considerable of the streams are the Bushkill and Broadhead creeks, besides which, are the the Sawkill, Ranny's kill, Dingman's creek, Cherry creek, Kobus' kill, Martin's creek, the lower Bushkill and

many others. Several of these if necessary, can be introduced as feeders into the canal.

### *Dimensions of the Canal.*

The plans and calculations which follow, have been made out for two different scales of construction. One adapted to locks of the width of eleven feet, and the other to those of nine feet. The canal, in the former case, is supposed 40 feet wide at the surface, 25 feet at the bottom, and 5 feet deep, which answers well for boats of 40 tons; in the latter it is assumed 32 feet wide at the surface, 20 at bottom, and 4 feet deep, which is a proper water-way for boats of 25 tons.

The lifts of the locks are taken in both cases, at from 9 to 19 feet, according to the supply of water.

### *General principles of the location.*

As the Bluffs constitute the chief difficulty of this route, the levels and location must be adjusted in some measure, with reference to them. In some instances where the Bluffs are of inconsiderable height, the previous levels have been kept up so as to afford a moderate *thorough-cut*, without exposing the canal to the action of the river at all. But in other cases where the height has been too great for this, so as to render a construction along the face of the Bluffs unavoidable, the opposite mode has generally been pursued with the levels, by dropping them as low as the floods of the river would permit.

Where Bluffs have not intervened, and generally in tracing the location through the flats, the levels have been governed with a view to the saving of distance, whenever this could be done without sacrificing any considerable advantage in other respects.

To these preliminary observations, I beg leave to add a few remarks on the location and construction of the principal works of the line, before proceeding to the estimate.

#### *1st. The dam across the Delaware, at the head of the line.*

This has been located, after a careful examination of the ground at a reef, called "*Peter's Rift*," about three-fourths of a mile above Carpenter's point. The river, it is true, is a little wider at this place than at Dunning's ferry, a mile and a half further up, but its advantages in other respects, and particularly with reference to the connexion of this navigation with the Delaware and Hudson canal, are such as I conceive, justly entitle it to the preference. It is situated, for example, in the shortest and most direct line to the Delaware and Hudson canal, and affords an intersection with that navigation near the bend of Port Jervis, equally convenient for the trade of both directions.

2dly. It cuts off more than a mile and a half of expensive construction along the margin of the river, on the Pennsylvania side. And 3dly. It affords great facility for leading off the canal, *immediately*, on the line of its general direction, even with a dam of no more than seven or eight feet in height. It may be added to these

remarks also, as a mere point of fact, that with respect to the canal now under consideration, this location takes off *nearly ten feet of lockage.*

It is proposed to construct the dam at this place with a waster of 600 feet; and with a curvature of 20 feet up stream, to adjust the work in such a manner that the *foot of the apron* shall, at the same time, range in a *direct line across the stream.* This will give a very lengthened slope to the apron *in the middle*, where it is also proposed to make the lip of the waster a *foot and a half lower* than at the wings. The level to be retained is  $10\frac{1}{2}$  feet below bench No. 2. A dam thus constructed, besides being very strong, will be perfectly safe and convenient for the passage of rafts and river craft at all stages of the water.

*2nd. The line from Carpenter's point to the crossing of the Bushkill.*

This division of the route comprehends about two miles of Bluffs and sidelings, requiring the construction by terrace and slope wall, principally at Milford, Cave bank, the Bluffs near judge Dingman's, and that above Daniel Hornbacks. In the generality of these cases the terrace may be formed in the ordinary way of excavation and embankment, but on a part of that at Milford, and also of that at Cave bank, it is thought more advisable to construct it entirely exterior to the present slope. Besides the localities mentioned, there are also about the same length of sidelings in different parts of this sub-division which are in a great measure avoided by the management of the levels, as heretofore explained, and paved by extra cuttings from above, only one of which exceeds sixteen feet in the deepest part. In all other respects this portion of the route is favorable, being composed almost wholly of fine arable flats and light soil.

A basin is projected in the mouth of the Sawkill opposite Milford, but which requires no extra expense. All the other streams are passed by culverts.

*3d. Crossing at Bushkill.*

This is proposed by means of a dam, with an embankment of moderate height across the flats to the *second bank* on the south side and bringing down the line to the level of the reservoir thus formed, by a lock of 9 feet, connected with the abutment of the dam on the north side. This crossing might be effected by means of a wooden aqueduct without bringing down the line; but this would require a very expensive embankment across the flats, and the addition of a separate dam and feeder for the supply of the canal—to which the plan proposed is considered decidedly preferable. A spacious waste wier is projected for this dam, to consist of five sections, with intermediate piers of masonry, upon which the tow path bridge is supported, and a grating for the security of the navigation in times of high water.

*4th. Walpack Bend.*

The laurel region of Walpack Bend, commonly designated by the name of "*Greenland*" has without impropriety been considered

as one of the chief difficulties of this route, The flats here, as already observed, disappear entirely, and the river closes to the very base of the mountain. This mountain is composed of alternating strata of limestone and slate, the ledges of which, covered with a partial layer of soil, constitute the face of the slope on which the line of canal is to be constructed. The water however, is not deep, and with a little labour in blasting, there is the greatest abundance of material, both for the terrace and its protecting walls.

The whole length of this reach is about a mile, and as it makes a very deep inflexion in the line, with a considerable increase of its neat length, I was induced to examine the mountain transversely, with reference to the practicability of a tunnel, by which this circuitous bend and a part at least, of the difficult construction at the base of the mountain, might be avoided. The result proved more favourable than I expected. It was discovered, that at a little more than six hundred yards from the beginning of the laurel region, and about nine hundred from the end, a line of only 266 yards would reach through the mountain to the flats on the opposite side; which, by a remarkable conformation at this particular point, afforded a choice of levels and the most favourable ground almost at the very base of the rocks. The species of the rock as already observed, is limestone and slate, of which the latter appears predominant; and it may be added, that from the order and position of the strata, it is extremely improbable that any other kind of rock will be met with in the excavation of a tunnel at this place.

The expense of excavating a tunnel under such circumstances it is not difficult to calculate. It requires neither *shafts*, *shoring*, or *lining*, and to many of the incidental difficulties and expenses, therefore, of an ordinary tunnel, it is wholly unexposed. The cubic quantity of the excavation and the price per yard, sufficiently augmented to cover all the difficulty of excavating in a confined situation, furnish at once, and with certainty the most important item of the estimate. The expense of rock excavation under such circumstances, including its removal along the drift to an extreme distance of *ninety* yards, has been taken at one dollar per cubic yard, by the United States board of engineers in the case of the Chesapeake and Ohio canals. The excavation in the deep cut at Lock Port, which is an extremely hard lime stone, and in a situation almost as confined as a tunnel, cost \$1 75 per cubic yard. The tunnel on the Schuylkill navigation, through a hard slate rock requiring blast, cost \$2 00 per cubic yard; that on the Union canal, also in slate, a few cents more, and the same kind of rock in the open air 50 cents per yard. This last fact gives the ratio of tunnel excavation, to that in the open air in the case of the Union tunnel as 4 to 1, which agrees very nearly with results furnished by the tunnel at Mauch Chunk, if we reduce the drifts to the same length, which we must also remark is a greater one than will be required at Walpack bend.

The excavation of the rocks at Walpack bend, in the open air, cannot reasonably be estimated, according to prices paid elsewhere on the Pennsylvania canals, at more than 50 cents per cubic yard, and it might safely be inferred therefore, from what has been stated that the excavations in the tunnel would not exceed 2 dollars per cubic yard; for the greater certainty however, I have taken it in the estimate at \$2 50.

The dimensions proposed for this tunnel are 15 feet average height, and a width of five feet in addition to the width of a lock; that is, 16 feet for the large canal and 14 for the small. Four feet of this width in either case, to be occupied by a wooden gallery for the towing path, supported on wrought iron staunchers, and bolted to the side of the tunnel. This will suffice without recesses for the passage of one boat at a time, which is abundantly sufficient, considering that the whole length of the drift is scarcely equal to the Rochester aqueduct. With these measures, and the rate per yard as above, and making allowances equally liberal, for the other items of the construction, it will be seen by the comparative estimate hereafter given, that a saving of nearly nine thousand dollars will still be accomplished on the large canal and six thousand on the small one, by taking the tunnel route in preference to that round the point; and in distance a mile and a quarter. I have not hesitated therefore, in presenting this as the proper location, but that the purposes of the board may be answered under every possible view of the case, I have also given a location and estimate for the route round the Bend,

*5th. From Walpack Bend to Broadhead's creek.*

There are a mile and a half of bluffs and sidelings in this division requiring slope wall, &c. of which 650 yards contain ledges of limestone in different proportions. The construction in these cases, however, does not materially differ from that generally employed, except that the terrace is more exclusively exterior to the face of the present slopes. The quantity of terrace work is thus increased, and in some instances also the price a little enhanced by the less facility of procuring earth; but on the other hand the ledges of rock afford the material for slope walling at a more easy rate, and in this way probably reduce the aggregate expense in all ordinary cases, to about the same as for other slopes. There are also in addition to the above, about 1200 yards of sideling ground, on which slope wall is avoided by cuttings, generally of moderate depth, but in one instance amounting on a short distance, and with very easy digging, to 25 feet. Small proportions of limestone are contained in about 300 yards of the bluffs last mentioned.

No other constructions worthy of note occur on this sub-division, the generality of the remainder consists of fine level flats similar to those above Bushkill, already described.

*6th. Crossing Broadhead's creek.*

This is done by a wooden aqueduct and embankment across the

**Flats.** There is so little fall in the creek from the crossing place to its mouth, that it would bring the canal within the range of the Delaware floods to lock down and cross with a dam as at Bushkill, and to cross by this means, without locking down would be inexpedient in many points of view, and much more expensive than an aqueduct. A feeder dam is proposed about 40 yards above the aqueduct, and a line of feeder to intersect the canal at the south end of the embankment.

About 700 yards from the embankment of Broadhead's creek, the line crosses Cherry creek by a culvert or aqueduct of stone. Ledges of lime stone border this creek on the south side, and for a short distance the line is partially excavated in that rock.

#### *7th. The Water Gap.*

This is well known on the passage of the Delaware through the Blue ridge. At its entrance from the north it presents a range of high mural precipices almost at the water's edge; but these recede after about 400 yards, and the mountain assumes a natural slope, composed of a mixture of sand stone fragments and earth, with a narrow irregular border of alluvion along its base. Towards the lower extremity, the rock re-appears *in place*, and again forms a shore of a steep and rugged character. Total length of the pass about 2500 yards.

The construction of the canal through this gap will be nearly after the same manner as at Walpack and other places, where ledges of rock occur. In the north part, where the rocks are in mass and of great hardness, it will probably be attended with somewhat greater expense, and so also on a portion near the south end, but with these exceptions, the line through the Gap will assuredly be less expensive than along the mountain at the Walpack; the slope is more gentle, the rocks more in loose fragments, and the proportion of the earth much more considerable.

#### *8th. From the water Gap to Long Rift.*

This comprehends no species of construction that has not already been described. About 1,500 yards of Bluffs occur, requiring terrace; but of which only one reach of 800 yards, at the end of the fiftieth mile, is any way remarkable either for height or continuous extent.

No rock worthy of notice, and the remainder of the route favorable, with the exception of a few slight cuttings amounting to about 1000 yards in all.

#### *9th. Long Rift.*

The bluffs at this place differ from those heretofore described in being composed wholly of slate. The ledges of which rise rather precipitously to a height of from 20 to 30 feet, and then pass off with a more gradual slope and covering of soil. A broad water-worn shelf of the same rock skirts along the base, at 4 or 5 feet above the water, and forms a substantial foundation for the con-



struction of the canal, except along the southern part of the range which is formed by the alternation of rocky points of 10 or 12 feet in height, with pools of water.

The construction of the line along the higher parts of this bluff, will have to be chiefly *exterior*, unless these points should be chosen in quarrying stone for the slopes. Along the less elevated portions, it may be formed in the ordinary manner of earthy slopes, and often with almost as little labour.

The entire length of the bluff including a short distance on which the rock disappears, is about a mile.

#### *10th. Foul Rift.*

The shore opposite this reef is a bold, though not very elevated precipice of lime stone, and this description, connected with the known character of the rapid, will at once suggest the motive for a construction, by excavating from above, rather than terracing from below. For this purpose the levels are retained, from the foot of the 18th lock, four miles above, and thus a height gained by which the depth of cutting is reduced to about 12 feet in the deepest place; and the total extent of cutting in which rock predominates to about 600 yards. To pass this with as little expense as possible, it is proposed to excavate the canal, as far as the rock extends without slopes: retaining the same bottom breadth as elsewhere. The descent of the ground immediately after passing these ledges produces an unusual assemblage of locks at this place; three being placed in rapid succession, and a fourth, a short distance down the flat.

#### *11th. From Foul Rift to the Wygaat.*

The proportion of bluffs on this part of the line, is rather greater, for the distance, than any heretofore described; but as they involve no different modes of construction, it will not be necessary to notice them particularly. The whole extent of terrace work required is about two miles and a quarter, of which half a mile is rocky. There are also besides this, about 300 yards of steep rocky sideling near Martin's creek, where the line is formed by an excavation and embankment, supported in part by a rough masonry wall. A small portion of rock cutting also occurs in some other parts of the line not included in the preceding.

A wide stone culvert will be required for the passage of Martin's creek.

#### *12th. From the Wygaat to Easton.*

The construction of the canal on this remaining fraction of the route, will depend essentially upon the views that may be adopted with regard to the Delaware dam. Should such a dam be constructed in the vicinity of Easton, and of a sufficient height to serve as a feeder for the lower section of the Delaware canal, at its present assumed level, it would *back up*, in time of low water, about 4½

feet at the foot of the Wygaat rapid. In this case, the canal should be locked down just above the Wygaat mountain, and continued by a well protected tow-path along the margin of the lake thus formed. No difficulty would be experienced in graduating the level of the tow-path, to the range of high and low water, as that range would probably be diminished at least one half by the construction of the dam. At the Mushkill, a comparatively slight bridge only would be necessary for the accommodation of the tow-path; and from that to the mouth of the Lehigh, the connexion would be formed by a succession of piers and bridges passing nearly in a direct line under the Delaware bridge. This would admit the formation of basins in connexion with the canal, between the tow-path and Water street, which would have also an uninterrupted communication with the river at large. But should a different plan be adopted with regard to the dam, so as not to back up the water in the manner described, the mode of construction for the up-river canal would be essentially different. In that case the line, after a single lockage at the Wygaat would be terraced round the point of that mountain, and along the rocky sidelings between that and Easton, in the manner already explained for cases of this kind. It would then require a substantial aqueduct across the Bushkill, and an embankment along the front of the town, at least one lift higher than the surface of water in the former case, to secure it against the freshes of the river, and finally locking down into the head basin of the lower canal. This although it might be equally convenient for the inhabitants of Easton, as regards the trade of the canal above, would interrupt in some degree their communications with the river; and I need not add, that it would be much more expensive than the other construction. By the comparative estimate given in a subsequent part of this report, it will be seen that the difference of expense will be \$21,565, if a small canal be adopted, and \$26,902, in the case of a large canal; and as I am not aware of any countervailing argument of equal weight, I have adopted the basin location as the basis of my calculations. The parallel location and estimate however, will furnish all necessary information in case this view should not be approved by the board.

The total length of the line thus described, is 66 miles and 126 rods, and the total lockage from the dam at Peter's Rift, to the level of the lower canal, 259 feet and a very small fraction. The total length of sidelings and bluffs, requiring any particularity of construction is  $13\frac{1}{2}$  miles, of this four miles are passed by cuttings of various depths, generally moderate, viz. 1200 yards in lime stone ledges and the residue in earth. The remaining nine and a half miles is terraced, viz. three and a half miles along rocky slopes and six along those of clay ground, &c. These measures of course do not include the 900 yards of rocky slope avoided by the tunnel, nor the rocky sidelings between the Wygaat and Easton, avoided by the basin location. The remainder of the route, nearly 53 miles in length, consists chiefly of arable flats, very favorable in point of levels and soil.

*Estimate.*

In the following estimate the quantity and cost of every species of construction, including locks, is exhibited for each mile separately.

The quantities of excavation have been minutely calculated for every variation of the transverse section in each mile; and the prices per cubic yard, are inferred from the actual excavation of similar soils in the vicinity, or elsewhere, on the Pennsylvania canals, viz. for earth, as loam, clay, gravel, &c. from 7 to 10 cents; for rocky soil, from 12 to 25 cents; and for rocks of lime stone and hard slate, 40 to 50 cents; embankment 12 to 20 cents. The locks are estimated according to the prices of materials and workmanship, at 496 dollars per foot for the 9 feet locks, and at 576 dollars per foot for those of 11 feet. Culverts, estimated in like manner, are taken at 250 to 300 dollars for those of the smallest size; 450, for those of 5 feet; 650, for those of 8 feet, and larger sizes in proportion. Wooden constructions are only used as culverts or aqueducts when the situation does not admit of arching slope walls, for outside slopes, are taken at 30 to 60 cents per square yard, according to the facility of procuring stone; and for inside slopes, at 12 and 15 cents. Puddling 25 cents per cubic yard. Bridges, from 200 to 300 dollars each. Fencing, 240 dollars per mile. Grubbing, from 480 to 960 dollars. Roads, from 6 to 9 dollars per perch.

## ESTIMATE.

*The dam at Peters' Mill.*

Waster 600 feet long with a curvature of 20 feet up stream, to be built of crib work, filled in with stone and finished with hewn timber, laid close in the thread of the stream with slopes up and down. The up-stream slope to have a uniform base of 18 feet, and to be well puddled and gravelled:—that down stream to have a base of 30 feet at the wings and 50 in the middle—Height of the lip 9 feet above lowest water at the wings, and 7½ in the middle. Abutments to be of good masonry, filled up with gravel, 20 feet high and 48 feet up and down stream, with wings of masonry above and slope wall below—Estimate viz:

## Small Canal.

Round timber framed down	27,900 feet at 7 cts	\$1953
Squared do do	27600 10	2760
Filling in with stone	4080 yds 50	\$049
do with gravel	18400 15	735
Masonry exclusive of face dressing	760 p \$3	2280
Face dressing square feet	1920 ft 10	1920
Coping by the run	240 1 25	300
Slope wall square yd	1700 yds 50	850
Paddle cubic yd	900 25	225
		<hr/>
		11335

## Large Canal.

The same in all respects.

1st Mile. Commencing with a guard lock at the dam—continues along shore 50 yards, and then rounds into its direction with an extreme of 11 feet, cutting above water line, which runs down to surface cutting at 780 yards  
 Lock No 1 at 1000 yards from the guard lock—fine flats of sandy loam—very easy digging—estimate viz:  
 Excavation 59590 yds at 7 cts \$4157 30  
 Slope wall 550 50 225  
 Culvert 3250 250 8250

Guard lock 9 feet lift in high water  
 Lock No 1 10 feet lift  
 Bridges  
 Fence

5184  
 5760  
 500  
 240  
 17,369 80

2d Mile Continues in the same course with the preceding, near the foot of the high land. Generally a level flat and easy digging.—Estimate viz.

Excavation	19800 yds at 8 cts	1584	25740 yds at 8 cts	2059 20
Embankment	15840	12	15840	1900 80
2 culverts		700		700
2 bridges	3200		3200	4 0
Fence		240		240
		4824 80		5300

3d Mile Inclines towards the second bank, and begins to cut in near the end. Generally easy digging—rather gravelly towards the end. Estimate viz.

Excavation	29050 yds at 9 cts	2614 50	36780 yds at 9 cts	3310 20
Culvert		250		250
Bridge		200		200
Fence		240		240
		3304 50		4000 20

4th Mile. Extra cutting on the first half mile, along the brow of the bank; extreme depth 9 feet above water, remainder favourable, except heavy embankment at crossing Quick's tail race—easy digging. Estimate viz.

## Small Canal.

Excavation  
Embankment  
Culvert of 30 feet at Quick's tail race  
2 ordinary culverts  
2 bridges  
Fence  $\frac{1}{2}$  and light grubbing 400 yards

45725 yds at 8 cts 3658  
15400 12 1848  
810 p at 83 9420  
850  
400  
940

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9516

5th Mile, Passes along the face of a moderate second bank, one thousand yards, then locks down and keeps the flat to the end. Stones on the first part—light sandy loam on the last. Estimate viz.

Excavation 29760 yds at 9 cts 2678 40  
Culvert 8250 250  
Lock No 2 10 ft 496 4960  
2 bridges 400  
Fence and 400 yards light grubbing 400

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8688 44

6th Mile, Passes wholly through fine arable flats, lock No. 3 near the beginning—soil, light sandy loam. Estimate, viz.

Excavation 31760 yds at 7 cts 2223 20  
Culvert 350  
Lock No 3 10 ft 8496 4960  
2 bridges 400  
Fence 940

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8173 20

## Large Canal.

58075 yds at 8 cts 4646  
15400 12 1848  
890 p at 83 2670  
850  
400  
940

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10754

then locks down and keeps the flat to the end. Estimate viz.

37600 yds at 9 cts 3384  
8250 250  
576 5760  
400  
400

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10194

38760 yds at 7 cts 2713 20  
350  
576 5760  
400  
940

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9463 20

# CANAL REPORT.

*7th Mile.* The first one thousand yards pass along the face of the Milford bluffs, requiring terrace and slope wall, except a small part near the Vandemark—cuts into the point of the bluff near the south end—dam at the Saw-kill, with a waste of 60 feet in two sections and extreme height of 16—slight extra cutting near the end of the mile—soil gravelly.

Excavation	28900 yds at	8 cts	2312	35300 yds at 8 cts	2828
Terrace embankment	75080	10	7508	98240	10 9-24
Slope wall outside	quare yds	60	6360	10600	60 6360
do do inside	4000	15	600		600
Dam at Sawkill			2440		2440
Culvert at Vandemark brook and 1 of 5 ft			1320		1320
4 bridges			1000		1000
Fence one-third			80		80
			<hr/>		<hr/>
			921620		32452

*8th Mile* Takes the slope of the second bank back of Judge Brinks', and continues it to the end. Soil generally easy digging, with a mixture of gravel in places. Estimate, viz.

Excavation	26840 yds at	8 cts	2147 20	34680 yds at 8 cts	2774 40
Embankment	-- 8400	10	840	8400	10 840
2 Culverts			500		500
4 bridges			1000		10 0
Fence and five hundred yds light grubbing			440		440
			<hr/>		<hr/>
			84927 30		5554 40

*9th Mile.* Extra cutting on a short distance near the beginning—passes close in front of W. Brink's barn, and thence makes a straight course, with ordinary cutting through a fine arable flat—very easy digging—light loam. Estimate, viz. excavation

3 bridges	43080 yds at 7 cts	3015 60	51040 yds at 7 cts	3572 80
Fence and two hundred yds light grubbing		500		500
		300		300
		<hr/>		<hr/>
		33815 60		34873 80

## Small Canal.

10th Mile, continues on a line with the preceding, very nearly, to the crossing of Ramyskill, and so passes 60 yards east of the present bridge. Lock No 4, north side of Ramyskill, graduates the line to the crossing level —lock No 5 near the end of the mill. Slight extra cutting at the point of hill, south of Ramyskill; arable flats light loam. Estimate, viz:

Excavation	29480 yds at 7 cents	2063	60	39480 yds at 7 cts	2763	60
Embankment	8800	12	1056	8800	12	1056
Culverts, two arches at Ramyskill	864 per £ 3	2592		930 per £ 3	2790	
Locks, No. 4 and 5	19 ft 496	9424		19 ft 576	10944	
Bridges	3	700			700	
Fence		240			240	

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15,075 60

11th Mile continues near the foot of the upland, on favourable ground, to 700 yards, the beginning of Cave Bank —thence terrace and slope wall to the end. Clay loam on the first part, loose, indurated clay on the last.

Estimate, viz:

Excavation	8580 yds at 8 cts	686	40	11880 yds at 8 cts	950	40
Terrace embankment	77000	10	7700	88600	10	8860
Slope wall, square yds	11120	60	6672			6672
Culvert at Connesha brook			1060			1060
Bridge			200			200
Fence $\frac{1}{2}$ and 1320 yards, very light grubbing,			4 6			476

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16,794 40

12th Mile. Bluff bank continues 880 yards, the line then cuts in with an extra cutting of 11 feet above water to which runs to surface cutting near the end of the mile. Soil of the bank light sand inclining to wash sandy loam on the last part, and very easy digging. Estimate, viz:

Excavation	52800 yds at 7 cents	3696		63860 yds at 7 cts	4495	90
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18,218 40

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18,493 60



# CANAL REPORT.

13

Terrace embankment	48400	9	4856	58080	9	5237 20
Slope wall outside square yards	7040	60	4224			4224
do inside do	5280	15	1056			1056
Puddle	1760	25	446	2200		550
Culverts		2	600			600
Bridges			200			200
Fence			120			120

*3th Mile*, closes on the up-slope, and cuts in at 500 yards, then moderate extra cutting on the brow and face of the general slope to the end; soil on the first part light loam, then stony. Estimate, viz:

Excavation	68750 yds at 9 cts	6187 50	89100 yds at 9 cts	8019
Culverts	2	550		550
Bridge		200		200
Fence $\frac{1}{2}$ and grubbing on 520 yds		500		500

*14th Mile*. Three hundred yards same as the preceding, then fine arable flats for 1200 yards; ground then becomes sideling, and requires slope wall on a small portion near the end; soil, light loam with some gravel; stony near the end. Estimate, viz.

Excavation	55900 yds at 8 cts	4472	70700 yds at 8 cts	5656
Embankment	1280	153 60	1280	153 60
Slope wall, sq yds	860	344		344
Culvert of 8 feet		650		650
Bridge		200		200
Fence, and 360 yds grubbing		456		456
		6976 60		7489 60

## Small Canal.

## Large Canal.

15th Mile. Slope wall continues to 150 yards. The line then gains the flats, with slight extra cutting, and continues on favourable ground to the end, except an embankment at Dingman's creek. Soil sandy loam Estimate, viz:

Excavation	35690 yds at	7 cts	2498 30	45490 yds at	7 cts	3184 80
Embankment	14900	12	1716			1716
Slope wall, sq yds	1650	40	660			660
Culvert at Dingman's creek	9-2 per	83	2386	1014	83	3132
Ordinary culvert			300			300
Bridges			500			500
Fence and 300 yards light grubbing	2	8250	360			360
			<hr/>			<hr/>
			89-0 30			9852 30

16th Mile, Descends by lock No. 6 to a lower level, and passes wholly through fine arable flats; soil, sandy loam. Estimate, viz:

Excavation	36500 yds at	7 cts	2555	48490 yds at	7 cts	3394 30
Culvert			375			375
Lock No. 6	9½ ft	8496	4712			5473
Bridges	2		400			400
Fence			240			240
			<hr/>			<hr/>
			82-2			9-82 30

17th mile passes wholly through fine arable flats, to the right bank of Hornbeck's brook; soil, sandy loam. Estimate, viz:

Excavation	31260 yds at	7 cts	2188 20	41140 yds at	7 cts	2879 80
Embankment	10600	12	1272	10000	12	1272
Wooden aqueduct at Hornbeck's, 3 spans 20 ft each			1590			1590
Culvert	1		375			375

2 Bridges  
Fence

\$ 400  
\$ 240

\$ 400  
\$ 240

6065 20

6756 80

18th Mile continues through flats; soil sandy loam; closes upon the second bank near the end, and becomes gravelly. Estimate, viz:

Excavation	35200 yds at 7 cts	2164	46860 yds at 7 cts	3280 20
Culvert		300		300
Bridges	2	400		400
Fence		240		240

3414

4220 20

19th mile passes round a bluff bank, with terrace and slope wall 400 yards, then deep cutting the same distance, from 28 to 12 feet above water; small embankment at Daniel Hornbeck's, and then flats to the end; soil, sandy and sandy loam—very easy. Estimate, viz.

Excavation, including terrace	117,940 yds at 8 cts	9435 20	135,360 yds at 8 cts	10669 80
Embankment		3940		394
Slope wall outside, sq yds		5660		5396
do inside		7200		1440
Puddle, c yds	1800	25	2200	650
Culvert	8 feet	650		650
2 Bridges		400		400
Fence $\frac{1}{2}$		160		160

16325 50

17658 80

20th mile. Ground on part of the distance slightly rolling; soil, light loam. Estimate, viz.

Excavation	24040 yds at 7 cts	1682 80	30280 yds at 7 cts	2119 60
Embankment	10800	12	10800	1296

## Small Canal.

## Large Canal.

2 Culverts	\$ 750	\$ 750
2 Bridges	400	400
Fence	240	240
	<hr/>	<hr/>
21st Mile Passes on to the wheat plains—fine arable flats—Lock No. 7 near the end. Sandy loam, very easy.—	4368 80	4805 66
Estimate viz:—Excavation	29800 yards at 7 cents 2086	39600 yards at 7 cents 2772
Lock No. 7	9 feet \$ 496	9 feet \$ 576
Culvert	300	5984
2 Bridges	400	310
Fence	240	400
	<hr/>	<hr/>
22d Mile, Continuation of the wheat plains—soil as before—Lock No. 8 near the beginning.—Estimate, viz:	7490	8896
Excavation	35560 yards at 7 cents 2489 20	44740 yards at 7 cents 3131 80
Lock No. 8	9 feet \$ 496	\$ 576
2 Bridges	400	5184
Fence	240	400
	<hr/>	<hr/>
23d Mile. Flats generally of the same character except narrower on the first part—Soil sandy loam and gravel.—	7593 80	8953 80
Estimate, viz:—Excavation	\$6200 yards at 8 cents 2896	48680 yards at 8 cents 3894 40
Culvert at Tom's creek	730	730
1 Bridge	200	200
Fence and 200 yards light grubbing	300	300
	<hr/>	<hr/>
	4126	5124 40

# CANAL REPORT.

**24th Mile.** Flats to 360 yards from the end—the line then closes to the up-slope on the line of the present road.  
 Soil sandy loam, except at the end, which is indurated clay and soil.—Estimate, viz:  
 Excavation and slight terrace 28880 yards at 7 cents 2021 60 38560 yds at 7 cents 2699 20  
 Culvert 5 feet 375  
 Bridge 1 200  
 Road new formed 48 per 38 384  
 Fence 220

**25th Mile** Continues near foot of up-slope, and in part on the line of the present road to 350 yards from the end.  
 Flat barely sufficient for the canal on part of the distance—wider near the end. Sandy loam and indurated clay.  
 Estimate, viz:  
 Excavation 3200 60 3878 20  
 Culverts one of 6 feet and one small 29529 yards at 8 cents 2261 60 35100 yards at 8 cents 2808  
 Bridge 700  
 Road new formed 100 per 38 200  
 Fence 800  
 120

**26th Mile** Passes through fine flats to the crossing of Bushkill. Lock No. 9 at the north end of the dam—waste weir of stone, average 12 feet high, 50 yards long in five sections. Embankment 350 yards, running 240 on to the next mile. Estimate, viz:  
 Excavation 4181 60 4628  
 Embankment at the south wing of the dam 25080 yards at 7 cents 1755 60 38120 yards at 7 cents 2318 40  
 Slope wall inside and out sq yds 13200 13 1716  
 Waste weir, viz. masonry 4160 40 1664  
 Dry wall 720 per 38 2160  
 Filling in 380 1 25 475  
 560 yds 15 84

## Small Canal.

## Large Canal.

Sheeting tow bridge, apron, &c.  
Lock No. 9  
2 Bridges  
Fence

9 feet 3 496.

1120  
4454  
400  
200

1120  
3376  
400  
200

14038 60

13321 40

27 1/2 Mile. From the guard lock at the Brahkill dam 610 yards to the beginning of Greenland, ground not unfavorable, then steep rocky sidelings to the entrance of the tunnel 640 yards—Tunnel 266 yards long—Rocks, limestone and slate. Estimate, viz:

Excavation, earth	9600 yds at 9 cts	864	12180 yds at 9 cts	1096 20
Embankment, earth	1800	12	1800	1 1
Embankment, earth and stone	67200	20	30640	20
Slope wall outside	7260	30	2178	2178
do inside	2560	12	307 20	307 20
Puddle	1320	25	1760	25
Culvert			250	250
Guard lock at the rate of an 8 feet lift			3968	4008
Fence and grubbing			258	258

21811 20

25181 40

Tunnel excavation 266 yds long  
Deep cut on the north side  
Masonry at each end  
Tow path bridge.

6207 yds at 82 50  
1125 1  
300 per 3 50  
266 yds 6

7094 yds at 82 50  
1250 1  
330 per 2 50  
1716

19408 50

21857

43219 70

47338 40

## CANAL REPORT.

127

*28 1/2 Mile* Passes nearly in a straight line along the foot of the mountain, on the south side—Deep cut at the mouth of the tunnel, otherwise favorable throughout—Loam and small gravel. Estimate, viz.

Excavation	46200 yds at 8 cents	3696	56400 yds at 8 cts	4512
Culvert		300		300
3 Bridges		600		600
Fence		240		240

*29th Mile* Closes to a steep slope and passes 340 yards on face of limestone bluff with terrace and slope wall, then passes on to the flat with slight extra cutting, partially in rock. The remainder favorable. Estimate viz:

Excavation, earth	27800 yds at 8 cts	2204	36200 yds at 8 cts	2896
do limestone	3400	50	4620	50
Terrace	25700	14	30600	14
Slope wall, sq yds	4080	30		1224
do inside	1360	12		163
Puddle, c yds	680	25	1020	255
Culvert		170		250
Bridge		250		200
Fence		200		240

*30th Mile.* Limestone ledges on the first three hundred yards, the remainder favorable—Soil gravelly loam.—

Excavation, earth	25500 yds at 8 cts	2040	35460 yds at 8 cts	2836
do rock	3600	50	4800	50
2 Culverts of 6 feet		900		240
Bridge		200		240





# CANAL REPORT.

2 Bridges	400	400
Fence three-fourths and 460 yds light grubbing	364	364
	8957 20	9919 40
34 1/2 Mile. Continues along the bluff, with narrow strip of flat below the level, 500 yards, then cuts in for half a mile—extreme depth 22 feet above water, then steep sideling with terrace to the end, soil sandy and sandy loam. Estimate, viz:		
Excavation	89880 yds at 7 cts	104280 yds at 7 cts
Slope wall sqr. yds	8800	60
Puddle and inside slope	3520	25
Culverts 2 of 8 feet,		5280
Bridge	1500	1300
Fence 1 and 800 yds grubbing	200	200
	560	560
	14511 60	16059 60
35 1/2 Mile. Commences at the base of the up slope, but runs on to the flat at 250 yds and has favourable ground to 1450 yards, then rocky bluff for 200 yds and terminates in flat—Lock No. 12, near beginning, sandy soil. Estimate, viz.		
Excavation	34400 yds at 7 cts	40160 yds at 7 cts
Terrace	12600	14
Slope wall, sqr. yds	2200	14600
Puddle and inner slope w.		2811 20
2 Culverts		2044
Lock No. 12	9 1/2 ft, \$496	660
Bridge		1440
Fence and 250 yds light grubbing		700
		5472
		200
		280
		13607 20
	11864	129

# Small Canal. Large Canal.

36 $\frac{1}{2}$  Mile, Through flats generally favourable, slight extra cutting at Eylenberger's, crosses Vancamp's creek sandy loam, Estimate, viz:

Excavation	30580 yds at 7 cts	2140	60
Slope wall at the dam of Vancamp's creek	400	15	60
Waste weir	30 ft breast		£60
8 bridges			700
Fence			240
			<hr/>
			4012 40

37 $\frac{1}{2}$  Mile. Passes 525 yds of bluff of which 225 are rocky, the residue in flats and very favourable. Estimate, viz:

Excavation	23360 yds at 7 cts	1635	20
Terrace	20260	15	5039
Slope wall	2500	30	750
2 culverts			700
2 bridges			400
Fence $\frac{3}{4}$ and four hundred yards light grubbing			320
			<hr/>
			7717 90

38 $\frac{1}{4}$  Mile, 270 yards bluff, then flats to the crossing of Broadhead's creek, which requires a wooden aqueduct 240 feet long in 6 bays, then 250 yards embankment to the higher flats which are favourable on the remainder. This section includes also a dam across Broadheads creek, above the aqueduct and 400 yards of feeder. Estimate, viz:

Excavation and terrace	29280 yds at 8 cts	2342	40
Embankment	16,800 yds at 12 cts	2016	
Slope wall for the terrace and embank.	6720 yds at 60 cts	4032	
Aqueduct 6 bays 40 feet each	240 ft	5035	
			<hr/>
			37920 yds at 8 cts 3033 60
			16800 yds at 10 cts 2016
			6720 yds at 60 cts 4032
			5385

Dam 240 feet waste abutments, sluice, feed gate, &c.	3240	
3 bridges	700	
Fence $\frac{1}{2}$ and 300 yards light grubbing	300	
	<hr/>	
	17,663 40	18,766 60
39th Mile Crosses Cherry creek and winds round the face of a rocky hill 350 yds, then 200 yds easy digging to the entrance of the water gap, through which the line continues with terrace and slope wall to the end—Lock No. 13, at the entrance of the water gap. Estimate, viz:		
Excavation in earth	14,700 yds at 8 cts 1176	17,170 yds at 8 cts 1373 60
Do lime stone	8330 yds at 50 cts 4165	10,090 yds at 50 cts 5045
Embankment	6600 yds at 12 cts 792	6600 yds at 12 cts 792
Terrace	28000 yds at 25 cts 7000	35,200 yds at 25 cts 8800
Slope wall outside, square yard	8360 yds at 30 cts 2508	8360 yds at 30 cts 2508
Do inside	5440 yds at 12 cts 650 80	2640 yds at 25 cts 660
Puddle, cubic yards	1760 yds at 25 cts 440	3132
Culverts at Cherry creek	30 ft span 2886	760
Do at Dutot's tail race	8 ft 760	5472
Lock No. 13	9 ft 4712	600
3 bridges	600	280
Fence $\frac{1}{2}$ and 300 yds light grubbing	280	
	<hr/>	
	25,969 80	39073 40
40th Mile, Continues through the gap, to 70 yards from the end, soil chiefly loose rocks and earth. Estimate, viz:		
Terrace	38440 yds at 20 cts 7688	51450 yds at 20 cts 10290
Puddle	3520 25 880	5280 25 1320
Slope wall outside 87 yds	19360 50 5808	5808
do inside	5280 12 633 60	633 60

## Small Canal.

## Large Canal.

Culvert	8 300	8 300
Grubbing, lightly on fifteen hundred yards	600	600
	15909 60	18951 60
41st Mile, Leaves the gap, at 70 yards, then slight extra cutting on 700, remainder generally favourable, sideling near the end, soil sandy loam. Estimate, viz:		
Excavation	50100 yds at 8 cts	4008
Terrace	2100 20	420
Slope wall outside sq yds	3300 30	990
do inside	1800 12	216
3 culverts		900
Bridge		200
Road renewed	140 p 37	980
		7764
42d Mile, Runs on sidelings requiring slope wall in part to 800 yds, the remainder flats, soil clay and gravel on the first part, sandy loam on the last. Estimate, viz:		
Excavation	34240 yds at 8 cts	2739 20
Slope wall sq yds	6800 50	3400
Culvert at Slate Quarry creek and 1 small one		1150
2 bridges		600
Fence $\frac{1}{2}$ and 400 yards light grubbing		320
		3209 20
	46080 yds at 8 cts	3686 40
		3400
		1150
		600
		320
		39156 40

# CANAL REPORT.

503

43d Mile, Twelve hundred yards intervalle, the remainder side hill intersected with ravines—Lock No. 14, near the end, sandy loam on the first part, stoney towards the end—Estimate, viz.

Excavation	33,620 yds at 8 cts	2689 60	43,530 yds at 8 cts	3482 40
3 culverts		1050		1050
Lock No. 14	9½ ft	8496		5472
4 bridges		900		900
Fence and 500 yards light grubbing		420		420

44th Mile, Passes for nine hundred yards at base of the up slope, requiring slope wall in part, then flats—embankment and culvert on Kobses' kill. Soil gravelly. Estimate, viz:

Excavation	21,240 yds at 8 cts	1699 20	27,780 yds at 8 cts	2322 40
Embankment	15,300	12	15,300	1836
Slope wall	3520	60		2112
Culvert at Kobses' kill	24 ft	1940		2180
Ordinary culverts		450		450
3 bridges		650		950
Fences ½ and 100 yards light grubbing		160		160
Road renewed	40 p	280		280

45th Mile, Runs on the line of lowest ground west of Hageman's, and near the foot of the up slope—extreme depth of cutting 9 feet above water—soil, clay and gravel. Estimate, viz.

Excavation	77500 yds at 9 cts	9750	94,000 yds at 9 cts	8514
3 bridges		700		700
Fence		240		240

9454

7915

9898 40

## Small Canal.

## Large Canal.

46 <sup>1</sup> / <sub>2</sub> Mile, Ordinary cutting and favorable ground throughout—soil, part sandy, part clay and gravel. Estimate, viz.		
Excavation	31,080 yds at 8 cts 2486 40	41,960 yds at 8 cts 3356 80
2 culverts	750	750
1 bridge	200	200
Fence $\frac{3}{4}$ and 200 yards light grubbing	240	240
	<hr/> 5676 40	<hr/> 4546 80
47 <sup>1</sup> / <sub>2</sub> Mile, Ground rather rolling on the first half mile. Locks No. 15 and 16, near J. Auter's. Remainder very favorable—soil, clay and gravel on the first part, sandy loam on the last. Estimate, viz.		
Excavation	44,360 yds at 8 cts 3648 80	54,060 yds at 8 cts 4324 80
Locks No 15 and 16	19 ft \$496	19 ft \$576
3 bridges	9424	10,944
Fences $\frac{3}{4}$ and 200 yards light grubbing	650	650
	260	260
	<hr/> 13,982 80	<hr/> 16178 80
48 <sup>1</sup> / <sub>2</sub> Mile, Very favorable flats—soil light sandy loam. Estimate, viz.		
Excavation	52,200 yds at 7 cts 2254	43,250 yds at 7 cts 2817 50
Embankment	5500 yds at 12 cts 660	660
Culvert	450	450
2 bridges	400	400
Fence	240	240
	<hr/> 4004	<hr/> 4577 50
49 <sup>1</sup> / <sub>2</sub> Mile, Closes upon steep second bank and runs sideling on the chief part of the distance four hundred yards requiring slope wall. Lock No. 17, at the beginning—soil inclining to gravelly, easy digging. Estimate, viz.		

# CANAL REPORT

205

Excavation	51.140 yds at 8 cts	4091	20	60,380 yds at 8 cts	4850	40
Slope wall square yards	4400 yds at 60 cts	2640		4400 yds at 60 cts	2640	
Culverts, one of six feet and two small		930			950	
Lock No 17	9 ft	8496			5184	
3 bridges		4464			700	
Fence $\frac{1}{2}$ and 500 yards light grubbing		360			360	
			13,275			14,664

*50th Mile*, Favorable flats to 1100 yards, then a steep gravelly bluff to the end. Lock No. 18, at the beginning of the terrace. Estimate, viz.

Excavation and terrace	62000 yds at 9	5380	76620 yards at 9 cts.	6895	80
Slope wall square yards	7260	60		4356	
Lock No. 18	9 ft	8496		8578	5184
Culvert		250			250
3 Bridges		400			400
Fence $\frac{1}{2}$ and 200 light grubbing		240			240
					17525

*51st Mile*, Two hundred yards, as the preceding, then slight extra cutting and favorable flats to the end except seventy yards which run upon cave bank. Estimate, viz.

Excavation and terrace	44700 yds at 8 cts	3580	80	56800 yards at 8 cts	4568
Embankment	11100	12	1332	12720	12
Slope wall square yard	2500	60	1500		1500
Do	1000	30	300		300
Culverts 1 of 10 feet 2 of 5 feet			1625		1625
3 Bridges			600		600
Fence $\frac{1}{2}$ and 200 yds light grubbing			260		260
					10879

9197 80

40

## Small Canal.

*52d Mile*, Passes along the face of the ledge at long rift, with terrace and slope wall to the end. Estimate, viz.  
 Terrace and embankment 123200 yards at 10 cts 12320  
 Slope wall square wall sq yds 18700 30 5610  
 Culvert 650  
 Bridge 200  
 Slight grubbing 160

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18940

20838

*53d Mile*, Slight terrace at the beginning, then flats half a mile, then face of second bank to the end—cuts in slightly near the end—soil gravelly, stony near the end. Estimate, viz.

Excavation 40920 yds at 9 cts 3682  
 3 Bridges 800  
 Fence 220

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4702

5494 80

*54th Mile* Has choice of levels and easy digging to two hundred and twenty yards from the end, where the limestone ledges of Foul rift commence, and run to 12 feet above water at the end. Channel to be cut without slopes. Estimate, viz:

Excavation in earth 22440 yds at 8 cts 1795 20 26840 yds at 8 cts 2147 20  
 do in rock 7040 50 8800 50 4400  
 Culvert 250  
 Bridge 500  
 Fence and 660 yds light grubbing 424

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6489 20

7721 20

*55th Mile*. Limestone ledge to four hundred yards; extreme depth 12 feet above water, occasional ledges on the four hundred following. Line then descends by locks No. 19 and 20, and runs on flat with easy digging to the end. Lock No. 21 in the flat Estimate, viz:



Excavation in rock	1480 yds at 50 cts	7240	1820 yds at 50 cts	9410
do in earth	23600 8	1888	30100 8 cts	2408
Locks No. 19, 20, 21	27 ft \$4696	13392	\$3676	15552
Bridge		200		200
Fence $\frac{3}{4}$ and six hundred yards slight grubbing		400		400
		<hr/> 25120		<hr/> 27970
56th Mile, Through flats, very favorable. Lock No 22 at five hundred yards. Soil sandy loam. Estimate viz.				
Excavation	26640 yds at 7 cts	1864 80	32860 yds at 7 cts	2300 20
Embankment	5400 10	540	5640 10	564
Culvert	8 feet	650		650
Lock No 22	9	\$496	\$576	5184
2 bridges		400		400
Fence		240		240
		<hr/> 8158 80		<hr/> 89338 20
57th Mile Passes face of an iron bank three hundred yards, requiring terrace, then two hundred yards in flat, then eight hundred yards—steep slope requiring terrace, of which 450 rocky—the remainder flats. Estimate, viz.				
Excavation and terrace	34660 yds at 9 cts	3119 40	40360 yds at 9 cts	3634 20
do stony	21700 12	2604	26350 12	3162
do rock	2860 50	1430	3740 50	1870
Slope wall	15180 40	6072		6072
do square yards inside	4140 15	621		621
Culvert		250		250
2 bridges		400		400
Fence $\frac{1}{4}$		60		60
		<hr/> 14556 40		<hr/> 16069 20

## Small Canal.

58th Mile. Very favorable ground to four hundred and forty yds from the end, then commences a gravelly bluff, requiring terrace, &c. Lock No. 23 at commencement of slope wall—soil clay and gravel. Estimate, viz.  
 Excavation and terrace 52900 yds at 9 cts 4761  
 Slope wall square yards 4840 60 2904  
 2 culverts 700  
 Lock No. 23 9 feet 5184  
 2 bridges 400  
 Fence 180

## Large Canal.

64860 yds at 9 cts 5837 40  
 2904  
 700  
 5184  
 400  
 180

812409

315205 40

59th Mile. Bluff continues six hundred and sixty yards, the line then cuts in and runs on favorable flats to the end. Gravelly and sandy loam. Estimate, viz.

Excavation and terrace 75280 yds at 8 cts 6022 40  
 Slope wall 7360 60 4416  
 2 culverts 600  
 Bridges 200  
 Fence and light grubbing 220

11458 40

12644

60th Mile. Flat continues favorable one hundred and twenty yards, then rock cutting round face of steep slope three hundred and thirty yards, and part rock one hundred and fifty further to Martin's creek. Moderate embankment between Martin's creek and Howell's tail race, after which flats to No. 24—sideling below the lock, and small portion of rock near the end. Estimate, viz.

Excavation earth 16920 yds at 8 cts 1353 60  
 do rock 11956 40 4782 40  
 Embankment 14080 12 1089 60  
 Rough wall at the rock sideling 380 per 1 50 570

21770 yds at 8 cts 1717 60  
 15542 40 6216 80  
 14080 1689 60  
 570

# CANAL REPORT.

4264  
750  
5184  
1100  
250  
320  
22062

9772  
750  
4464  
1100  
250  
320

Aqueduct at Martin's creek, 3 arches, 20 ft  
Culvert at Howel's tail race 9  
Lock No. 24  
4 bridges  
Fence and three hundred yds very light grubbing  
Road new formed 40 perch at 28

Estimate.  
Culvert and embankment at Sandt's.  
51340 yds at 7 cts 3593 80  
1244  
400  
240

19051 60  
2741 20  
1090  
400  
240

61st Mile. Through flats with favorable levels, and easy soil. Culvert and embankment at Sandt's.  
viz. Excavation 59160 yds at 7 cts 2741 20  
Culvert at Sandt's 12 ft 1090  
2 bridges 400  
Fence 240

5477 80  
4471 20

62d Mile. Favorable on the first half mile, passing back of Sandt's, line then crosses to the upland with points of rock.—Lock No. 25 at the commencement of the steep below which terrace and slope wall are partially required. sandy loam and gravel Estimate, viz.

Excavation earth 18020 yds at 8 cts 1441 60  
do rock 5780 40 2312  
Terrace 20600 10 2060  
Slope wall square yards 4400 30 1320  
Culvert 300  
Lock No. 25 9 feet 490 4464  
2 bridges 500  
Fence 1 and five hundred yards light grubbing 320  
Road new formed 100 perch 9 900

23240 yds at 8 cts 1779 20  
7050 40 2820  
24720 10 2472  
1329  
300  
5184  
500  
320  
900

£ 576

15593 20

13617 60

## Small Canal.

## Large Canal.

63d Mile. Steep bank continues, with points of rock, to four hundred and forty yards from the end, requiring terrace, &c. remainder favorable levels and easy soil. Estimate, viz.

Excavation and terrace	61600 yds at 10 cts	6160	78320 yds at 10 cts	7832
Slope wall	sq yds	14520		4356
2 bridges		30		400
Fence $\frac{1}{4}$ and twelve hundred yds light grubbing		550		550
		<hr/>		<hr/>
		11466		13138

64th Mile, Passes on favorable ground to lock No. 26, then descends by three locks into the head of the Delaware basin, at the point of the Wygaat mountain—remainder of the mile, six hundred yards, to be terraced with tow path only. Estimate, viz.

Excavation	27240 yds at 9 cts	2451	60	34380 yds at 9 cts	3094	20
Terrace	9300	15	1395	9300	1395	
Slope wall	4700		1880		1880	
Tow path bridge			120		120	
Locks No. 26, 27 and 28	26 feet	3496	12896	3576	14976	
3 bridges			600		600	
Fence $\frac{1}{4}$			180		180	
		<hr/>	19502		<hr/>	22245
			60			20

65th Mile.

Tow path and slope wall—shore generally favorable.

Estimate, viz.

Terrace	20640 yds at 8 cts	1857	60	20640 yds at 8 cts	1857	60
Slope wall	sq yards	14000	40	20640	5600	
Tow path bridge			130		150	
		<hr/>	7587		<hr/>	6587
			60			60

## 66th Mile. Tow path and slope wall, generally favorable—crosses Bushkill. Estimate, viz.

Terrace	21200 yds at 9 cts	1908
Slope wall sq yards	13860 40	5544
Tow bridge across the Bushkill	180 ft 5 20	936
		<hr/>
		8388

Fractional remainder from the end of 66th mile to the mouth of the Lehigh, 126 rods, passing under Delaware bridge, 330 yards opposite the town of Easton, done with piers and bridges. Estimate, viz.

Terrace	6470 yds at 9 cts	582 30
Slope wall sq yards	3460 60	2076
Tow bridge	990 ft 3 520	5148
		<hr/>
		7806 30

## Summary of the preceding estimates.

	S. Canal.	L. Canal.	S. Canal.	L. Canal.
Dam at Peter's Rift	11395	11395	14692	16412 40
1st mile, Lock No. 1	14796 30	17369 80	7437 50	9259
2nd	4824 80	5300	6275 60	7459 60
3rd	3304 50	4000 20	8900 30	9852 30
4th	9516	10754	8282	9882 30
5th Lock No. 2	8688 40	10194	6065 20	6756 80
6th Lock No 3	8473 20	9463 20	3404	4320 20
6th	21620	24452	16325 20	17658 80
8th	4927 20	5554 40	4568 80	4805 60
9th	3815 60	4872 80	7490	8996
10th Locks No. 4 and 5	16075 60	18493 60	7593 20	8955 80
11th	16794 40	18218 40	4126	5124 40

	S. Canal.	L. Canal.		S. Canal.	L. Canal.
24th	3200 60	3878 20	47th Locks No. 15 and 16	13982 80	16178 80
25th	4181 60	4628	48th	4004	4567 50
26th Lock No 9	14038 60	15321 40	49th Lock No. 17	13215 20	14664 40
27th	41219 70	47338 40	50th	15290	17325 80
28th	4836	5652	51st	9197 80	10379 40
29th	9749	11672	52nd	18840	20838
30th	5380	6776 80	53d	4702	5494 80
31st	7681 60	9198 40	54th	6489 20	7721 20
32nd	7720 60	9085 40	55th Locks No 19, 20 and 21	23120	27976
33d	8957 20	9919 40	No 22	8158 80	9338 20
34th	14511 60	16059 60	56th	14556 40	16069 20
35th mile Lock No 12	11264	13607 20	57th	13409	15305 40
36th	3000 60	4012 40	58th Lock No. 23	11458 40	12644
37th	6844 20	7717 80	59th	19031 60	22062
38th	17665 40	18706 60	60th Lock No. 24	4471 20	5477 80
39th Lock No 13	25969 80	30073 40	61st	13617 60	15595 20
40th	15909 60	18951 60	62nd Lock No. 25	11466	13138
41st	7714	8924	63d	19502 60	22345 20
42d	8209 20	9156 40	64th Locks No. 26, 27 and 28	7587 60	7587 60
43d Lock No. 14	9771 60	11324 40	65th	8388	8388
44th	9127 20	9890 40	66th	7806 30	7806 30
45th	7915	9454	Fraction $\frac{1}{2}$ of a mile		
46th	3676 40	4576 80			
Engineering, superintendence and contingencies				716,798 80	825,502 10
Total cost for 64 $\frac{1}{2}$ miles,				60000	60000
Cost per mile				776,798 80	885,502 10
				8 11,678 64	8 13,319 62

Estimate round the bend at *Walpack*, beginning at the north end of the tunnel, and ending with the 28th mile of the located line. Rocky bluffs 880 yards, then slight embankment, and flats generally to the end—gravelly and sandy loam. Distance 4340 yards. Estimate, viz:

Excavation	70100 yds at 8 cts	5608	97740 yds at 8 cts	7819	20
Embankment	8000	12	9400	12	1128
Terrace along the mountain	91100	20	108320	20	21664
Slope wall sq yds	10190	30			3057
Puddle c yds	1700	25	2550		637
2 Culverts					50
4 Bridges					600
Fence and slight grubbing					900
					540

Comparison { Total distance round 4340 yds; Cost for small C. 30210  
do by the tunnel 2026 do do 24244 50

Cost for large canal 36345 70  
do do 27509

Difference in favor of the latter 2313 yds

5965 50

*Estimate for a separate canal from the Wygaat to Easton.*

64/4 *Male* runs on favourable ground with ordinary cutting, 1140 yards to lock No. 26, thence turns round the point of the Wygaat with terrace and slops wall. Estimate, viz:

Excavation in earth	21560 yards at 8 cents	1724	80	26120 yards at 8 cents	2089	60
Terrace round the mountain	46600	20	9320	54700	20	10940
Slope wall	6600	30	1980			1980
Culvert			300			300
Lock No 26	9 ft	4 96	4464	576		5184
Bridges	5		600			600
Fence & 400 yards slight grubbing			240			240
			18628 80			21333 60

## Small Canal.

65th Mile, near the river bank but without exposure, except 500; mixture of rock on this part, otherwise sandy loam, Estimate, viz:

Excavation	51080 yards at 8 cents	4086	40	
Terrace	15750	15	2362	50
Slope wall	5280	30	1584	
Culverts			550	
Bridges	-		400	
Fence $\frac{1}{4}$ and 500 yards light grubbing			320	
			<hr/>	
			9802	90

66th Mile runs on a flat three hundred and eighty yards, then locks down and keeps the steep slope to the crossing of the Bushkill, and ends one hundred and ten yards further south. Stony along the slope with points of rock. Estimate, viz:

Excavation	14800 yards at 8 cents	1184	18800 yards at 8 cents	1504
Embankment and terrace	53040	12	67860	8143 20
Slope wall	13800	30		4140
Aqueduct across Bushkill	5 bays			4750
Lock No. 27	9 ft 496		576	5184
Bridge				200
Fence $\frac{1}{4}$ and 1100 yards light grubbing				590

Fraction of a mile, one hundred and twenty-six rods from the end of the 66th to the Lehigh, requires strong embankment in front of the town and under Delaware bridge. Lock No. 28 graduates the line to the head line of the lower canal. Estimate, viz:

Embankment and terrace	45180 yards at 12 cents	5421	60
Slope wall square yards	6960	60	4176
			<hr/>
			24417

## Large Canal.

65th Mile, near the river bank but without exposure, except 500; mixture of rock on this part, otherwise sandy loam, Estimate, viz:

66080 yards at 8 cents	5286	40
18750 12	2312	50
	1584	
	550	
	400	
	320	
	10452	90

66th Mile runs on a flat three hundred and eighty yards, then locks down and keeps the steep slope to the crossing of the Bushkill, and ends one hundred and ten yards further south. Stony along the slope with points of rock. Estimate, viz:

18800 yards at 8 cents	1504
12	8143 20
67860	4140
	4750
576	5184
	200
	590

Fraction of a mile, one hundred and twenty-six rods from the end of the 66th to the Lehigh, requires strong embankment in front of the town and under Delaware bridge. Lock No. 28 graduates the line to the head line of the lower canal. Estimate, viz:

Embankment and terrace	45180 yards at 12 cents	5421	60
Slope wall square yards	6960	60	4176
			<hr/>
			24417



Culvert	350				350
Lock No 28	8 ft	496			4608
Bridges	4	350		576	1400
					<hr/>
					16726

*Comparison of the two modes of construction.*

	S. Canal	L. Canal	By separate construction	S. Canal	L. Canal
By the Delaware basin.					
64th mile as above estimated	19,502 60	22,245 20	64th as above	18,628 80	21,533 60
65th	7,587 60	7,587 60	65th	9,302 90	10,452 90
66th	8,388	8,388	66th	21,602 80	24,417 20
Fraction	7,806	7,806	Fraction	15,315 60	16,726
				<hr/>	<hr/>
Total	43,284 20	46,026 80		64,850 10	72,929 70
				<hr/>	<hr/>
				43,284 20	46,026 80
				<hr/>	<hr/>
				21,565 90	25,902 90

*Difference in favor of the basin location*

The instrumental survey upon which the foregoing report is based, was commenced on the thirtieth June, and ended early in August. My assistants were Lieutenant Ross, leveller, Lieutenant T. B. Brown, topographer, Absolom Nyce surveyor, and Lieutenants Chare and French volunteers, to all of whom I am under many and great obligations.

I have the honour to be, &c.

D. B. DOUGLASS.

*United States' Military Academy,  
29th November, 1828.*

## No. 4.

*Report on the survey of various routes for a portage across the Allegheny Mountains by N. S. Roberts, engineer.*

*To the Board of Canal Commissioners of Pennsylvania.*

GENTLEMEN,

The exploration and location of the route of a rail road across the Allegheny mountain, to connect the canal on the Juniata, with the western division of said canal on the Conemaugh, has among other duties, been assigned to my superintendence, the present season. Upon the progress made therein, I beg leave to present the following report.

That on the 14th of June, the party for that service left Pittsburg and proceeded by way of Johnstown, to Bob's creek Gap, which had been previously examined and reported to be the most favourable plan, for the intended rail road to pass the Allegheny mountain. As my instructions were very general, and no preference to any route, nor plan of termination of the rail road, having been given, it became necessary after arriving at the summit or gap, above mentioned, and fully examining the same, to take such a topographical view of the mountain, and the principal ranges of hills leading therefrom, in the required direction as would be most likely to admit a continued descending graduation, to extend from said summit, eastward towards the Juniata, and westward down the valley of the Conemaugh. For this purpose several ridges were examined from the mountain east, down each side of the valley of Poplar-run (which has its sources within two miles of said summit,) viewing the different elevations and slopes, and the exposures of the hills, the ravines and depressions to be met, in each route from the summit to the Juniata.

From these views three ranges of hills seemed to present routes, which might be pursued with success, viz: the ridge on the north side of Poplar run, the ridge on the north side of the south branch of the same run, and also the ridge on the south side of the same.

As writers on the subject of locating rail roads have recommended a southern exposure for obvious reasons, other advantages being equal, for the same reasons I have preferred the two first mentioned routes; both of which have been graded, and upon examination, the ridge first mentioned, has decidedly the preference; as the second route will not admit a grade of less than two degrees. The distance between Bob's creek summit-bench, and the Juniata basin, as laid down in the report of Messrs White and Olmstead, is 13 miles 72 chains, and the descent 1591.39 feet. Calculations were made and grades run, for an extension of the line by rounding points and ravines: the line run being the hypotenuse of a triangle whose whole length would be equal to the length of the road, and the whole descent equal to the perpendicular of such triangle, taking

proportionate parts of each, at each station. The perpendicular descent being determined as above, it is evident that the hypotenuse or the line of the road will be extended in proportion to the declivity of the graduation permitted to be run. During these operations a lower place in the mountain situated at the head of Sugar run, which is about two miles north of the turnpike road on the summit of the Allegheny mountain, was explored by the Hon. John Blair, and strenuously recommended by him, as deserving a particular examination. Another company was formed for the purpose, and the fact ascertained, that the sugar run summit is 214 feet lower than that of Bob's creek; and the same was reported by letter to the acting canal commissioner who recommended that the practicability of a route for the rail road by the Sugar run summit should be ascertained; to which due attention has been paid. Having two summits to examine from, it became necessary on the 25th of July, to organize two locating parties. Mr. Theophilus Williams, my principal assistant engineer, was to pursue the locations and levels on the Bob's creek routes, and Mr. Levi Williams as surveyor.

The party on the Sugar run gap location was composed of Mr. James Callan as surveyor, and Mr. George R. Eichbaum as sub-assistant engineer, and the levels thus taken by each locating party have been compared from time to time, at the end of long lines, and found to be very correct.

While these examinations were in progress, another route was recommended. A petition was handed me accompanied by several respectable gentlemen, requesting that a route might be explored from Bob's creek summit by the south side of the Blue Knob mountain, to connect with a basin near the mouth of M'Kee's gap. This was also approved by the acting canal commissioner, and the location and survey has been made, and the route found practicable.

But as a more detailed account of all the graded lines which have been run, and of the number of hands employed from time to time, during the operations, has been communicated from time to time, by letters to Gen. Lacock, the acting canal commissioner on this division, it may not be necessary here to recapitulate them.

As the different routes from the two summits approached the Juniata, it became necessary to examine such situations as appeared favourable for a suitable termination of rail road. And after spending some time in viewing different scites for a basin on the Juniata; I came to the following conclusion, that the site as recommended by Messrs. White and Olmsted, being situated about three fourths of a mile from the turnpike road, and having no particular public advantages; and is about the same distance above the junction of the Blairs gap, or Beaver dam branch, and Bedford branch of the Juniata; and as both these branches are to be brought as feeders through the basin into the canal, two dams, two guard gates, two waste weirs, and two feeders of considerable length will be required for that purpose.

With due respect, however, to the opinion of others, I would recommend a location for a basin which is situated one mile down the Juniata from the above mentioned, and adjoining Frankstown. This location presents ground very favorable for a spacious basin, which may be extended up from Frankstown, about half a mile at a moderate expense, and as the turnpike road is perfectly straight for that distance, the basin proposed is laid parallel thereto, and 100 feet from it, and 100 feet wide at the water surface. The ground adjoining the basin and turnpike road, will afford space sufficient for a convenient and extensive town; and besides the more local advantages to be derived by a respectable neighboring population; its being situated on one of the most public turnpike roads in the state, and likewise at a point where several other leading roads diverge in different directions, will afford extensive commercial accommodations to a very considerable distance in the surrounding country; all which, together with the beauty of the situation would tend to increase the prosperity of a flourishing town. To bring the water into the head of this proposed basin, to supply the canal, but one short feeder, one guard gate, and one dam, (five feet high) and one waste weir to be situated just below the junction of the two branches, which will discharge the floods into the natural channel of the river, will be necessary. This location would save one mile of canal, on which will be necessary at least one lock, one aqueduct to convey the canal across the Beaver dam branch, and half a mile of considerable embankment to reach the site of the upper basin. The rail-road for the same distance can be made for less money. All the routes from the Sugar run gap, and from Bob's creek gap by way of Newry, terminate very conveniently at the Frankstown basin.

If the route for a rail road by the south side of the Blue Knob should be preferred, the site of the proposed basin as located opposite the mouth of Makee's Gap, presents as many advantages in point of natural beauty and a central position, as almost any other situation which has come within the limits of the contemplated improvement; being situated in the vicinity of a number of extensive iron works and other manufactories, and in the midst of a rich agricultural district, well accommodated with good roads conveying to the point where the basin and rail road are proposed to unite.

In this arrangement a town might be laid out as extensive as should ever be necessary, the basin being located in a wide bottom, near the margin of a hill gently rising to the northwest.

And although there is good reason to believe, that a sufficient supply of water might at all times be furnished, for all the purposes of the canal, from the Bedford and Cove branches united; yet in order to obtain the Cove branch, considerable expense would be incurred, besides the private damages to mill owners, to the amount of four or five thousand dollars, and perhaps more, by diverting the course of that stream. About seven miles of canal and twenty six feet of lockage, would also be necessary between the proposed basin at Frankstown and the Cove basin.

A very convenient location for a basin and feeders has been made on the Juniata, at the mouth of Poplar run, and handsomely connected with the rail road line which passes through Newry. This would require an extension of the canal of four miles, and about 40 feet of lockage, between Frankstown and the basin at the mouth of Poplar run.

The Cove and Bedford branches unite about half a mile above this proposed basin, where the water can be taken by a dam about four feet high, and conveyed to the head of the basin at a very moderate expense, the distance being but 25 chains, and without doing the least injury to private property. With respect to expense, the basin at the mouth of Poplar run has decidedly the advantage over that at the Cove; and in all other respects, may be considered as equally well situated for commercial intercourse, and for a populous town.

Such are the different locations for the union of the rail road and canal, on the Juniata, which I have thought proper to recommend for the consideration of the board.

On the west of the mountain, no point or place for terminating the rail road or canal, has been agreed upon with as much certainty as the public interest requires. Agreeably to the intention of the legislature, to extend the canal on the Juniata and Conemaugh, as high as the supply of water is sufficient, the acting canal commissioner required the engineers of the western division of the canal, to ascertain and recommend such place of terminating the canal on the Conemaugh; which has been attended to, and a report made thereon, agreeably to the said requirements, and the views of the legislature.

But after duly considering the embarrassing and uncertain nature of the circumstances and evidences, under which that estimate of water was made, my duty requires me to explain my views on that subject more fully at this time, to the board. According to the requisition of the acting canal commissioner, an estimate was made of the waters running in the Conemaugh at Johnstown, on the 16th of October, 1828, and found to be more than 40 cubic ft per second; and from the best information received at the time, it had not been much lower through the season, except for a few days. But from the uncertainty of the case, allow a severe drought to reduce the quantity to 20 or 25 cubic feet per second, and that one third of this last quantity is from the south fork, (which is about the quantity found in it by Gen. Lacock by actual measurement, during a very dry time) there would then be running where the Ebensburg and Munster branches, commonly called the North Branch, unites with the Conemaugh 5½ miles above the south fork, at the rate of 15 cubic feet per second, without any preconceived reservoirs, more than the natural bed of the stream. In order to make the most economical use of water, admit locks of five feet lift to be constructed, and allow the greatest press of business to require six boats to pass up and down, requiring four locks of water every hour, at this rate 144 boats requiring 96 locks of water, would

pass every 24 hours, which being computed thus,  $5 \times 15 \times 96 \times 96$  gives 648,000 cubic feet, the quantity contained in 96 locks, which being divided by the number of seconds in 24 hours, viz:  $24 \times 60 \times 60 = 86,400$ , the quotient is  $7\frac{1}{2}$  cubic ft of water per second, which would be necessary to pass 144 boats per day, which, during the drought of summer, would probably never happen as at that season, a recess in canal navigation commonly occurs. The remaining  $7\frac{1}{2}$  cubic feet, and allow  $7\frac{1}{2}$  cubic feet per second from the same fork, making 15 cubic feet per second, which would supply a loss by soakage and evaporation, at the rate of 50 cubic feet per minute per mile, on 18 miles of canal. This supply would be the more ample, as the loss by leakage would be returned to the canal by means of several dams, composing a part of the canal itself in the above distance, which extends some distance below the junction of Stony creek, and where a feeder would be taken to supply the canal below Johnstown.

Considering the great extent of surface drained by these three branches of the Conemaugh, it is reasonable to state, that a very considerable supply, in addition to the above, might be obtained, if necessary, from suitable reservoirs formed on each of those branches, to be drawn in seasons of drought, and which would form valuable sites for manufacturing purposes. From these views of the subject, there is reason to believe, until facts can be better ascertained, that a sufficient supply of water, for all the purposes of a canal, may at all seasons be relied upon as far up as the junction of the North Branch.

The situation is pleasant and healthy, and for several miles above and below, the hills have considerably subsided, and are partially cultivated, as well as a fine wide bottom of alluvial land, which extends about three miles above and below the mouth of the North Branch, and is principally along the west side of the river, which, for the above distance, flows in a gentle current of less than ten feet to the mile.

A spacious basin might be conveniently located at a suitable distance below the North Branch, and by a low dam across the river just below the junction, the waters of the united branches might be brought by a short feeder through the basin into the canal.

The ground adjoining is suitable for a convenient and extensive town, and roads lead off to Ebensburg and Munster, and in other directions.

Such a situation for the junction of the rail road and canal, would, in all probability, soon become very interesting to the adjacent country.

Should this place as a termination be adopted, about 16 miles of canal, and 380 feet of lockage, would be necessary, to continue the navigation from Johnstown to the North Branch.

The location of the rail road extends to Johnstown, where a suitable basin can be made to connect to the canal. The site of the town is perfectly healthy, and is in every respect, well situated to accommodate the country, as roads lead from it in different direc-

tions, yet the reasons above stated have been considered of sufficient importance, both in a public and private point of view, to require a great degree of prudence in determining upon a final location. And that this subject, together with an account of all the graduations, surveys, locations, estimates and relative opinions which have been made on the various routes, at the present critical stage of the business, should be as fully communicated as the nature of the case will admit, and submitted to the board, to enable them to report thereon, as the merit of the different routes and the public good may require.

The following is a statement of the distances, grades and descents of the several routes, for a rail road, which have been explored and located from Bob's creek summit, and from Sugar run summit east to the Juniata.

First route, from Bob's creek summit along the northerly side of Poplar run, to the proposed basin above Frankstown, beginning at the Cucumber bench on the summit.

Thence to No 400, distance 15 miles at 1° or 92 feet per mile, descent	1380
Thence to No 433, distance 1 mile 20 ch at 64 feet per mile to Newry	80
Thence to No 524, distance 14 miles 58 ch at 24 feet per mile old basin	113.40
Thence to No 554 distance 1 mile 1 ch at 17½ feet per mile to proposed basin	17.90

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Length of this route 21 m. 79 ch. Total descent 1591.30

The summit on this route is favorable ground, which continues for some distance along the east side of the mountain; the line passes some steep ground and several cultivated farms, and in about 5 miles the line turns more east, and follows the southerly side and near the top of a ridge which in some parts is quite steep, in others more broad and cultivated, and extends to Newry in 11½ miles, where a lighter grade is pursued along the southerly side of Chinney ridge 2 miles to the Juniata, and thence along the margin of the river and bottom land, mostly cleared, 4 miles to the proposed basin, near Frankstown. This line has a favorable exposure facing to the south and east. It is moderately stony, and the mountainous part has some rock. A branch of this route leads from Newry to the mouth of Poplar run, where a convenient location for a basin and feeder is made near the Juniata.

Distance to Newry on the above route 16 miles 20 chs, descent to Newry	1,460
Distance to proposed basin at Poplar run 1 mile 76 chains grade 48 feet per mile	92

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Length of this route to basin 18 m. 16 chs.  
Descent to basin, ft. 1,552

Second route, from Bob's creek summit, by the south side of Blue Knob, beginning at the Cucumber bench on the summit.

Thence to No 438, distance 16 miles 34 ch, at 1° or 92 ft per mile, descent 1,511.10

Thence to the head of the proposed basin 12 ch. descent 4.07

Length of this route 16 miles 46 ch. descent 1515.17

On this route in about 2½ miles the line crosses the summit between the waters of the North and South Poplar runs, and in two miles further crossing the farm of Mr. Ivory, reaches the side of Blue Knob. Thus far the ground is very favorable, then turning more to the right, the line follows the side of the mountain which in some parts is very steep and rocky. Passing round the mountain, the ground becomes more favorable, though a very crooked line is traced by running a regular grade.

In about eleven miles the grade follows a ridge which leads in a direction towards the Juniata. The line is very crooked and the cross section of the ground pretty steep to within about 2 miles of the termination, when it becomes more favorable, and has less ravines. This line terminates at a proposed basin located on a handsome situation for a town, adjoining the road from Newry to the iron works on the Cove-branch. This is as short a line as a grade of one degree will admit, as the graduation of one degree terminates only 12 chains from the head of the proposed basin. Although this line has a great share of rocky steep ground, and has many short turnings, it might be made a firm dry road, as it has, through its whole distance, a favorable southern and eastern exposure.

These two routes from the Juniata to Bob's creek gap, lead through a part of the country at present quite remote from the great western turnpikes, being situated nearly between them, and on this account the rail road would add immensely to the interests and accommodations, of a respectable population, and probably the road itself would receive a greater amount of business, and be thereby more beneficial to the state, by being thus remotely situated from other great roads.



*Rail road routes from Sugar Run Gap, summit east.*

Distances, grades and descents, of three routes, which have been explored and located from the summit of Sugar run gap, east, to the proposed basin near Frankstown.

First route, by the north side of Sugar run, having a fine southern exposure.

Beginning at the white oak bench on the summit and running at  $1\frac{1}{2}$  degrees or 138 feet per mile to

No. 238, distance 8 miles 74 chains, at 138 ft			
per mile descent to foot of mountain			1213.8
Thence to No. 253,	45	79	
along bottom			44.736
Thence to No. 257,	12	74	
to Old Gap branch			11.617
Thence to No. 280,	69	40	
along bottom			34.202
Thence to No. 343, 2 miles	29	20	
Hollidaysburg			47.25
Thence to No. 382,	1 m. 37	20	29.25
Thence to No. 400,	54 level to head		
of proposed basin			.8

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Length of this route. 15 m. Descent, 1381.655

Second route, by the north side of the turnpike road.

This route also, after passing the coal banks, has a favorable southern exposure, till the line swings round more northerly with the mountain, where the road will face the east and north east till it reaches the valley of Spencer's run, from thence to Frankstown the ground is very favorable. Beginning at a point No. 18, which is south of the white oak bench, and 36.746 feet above it, in order to cross a ridge near Burgoon's coal bank, and running at one degree,

Thence to No. 333, distance 12 miles 42 chains, at 92 feet per mile,

1152.3

Thence to No. 409, distance 2 miles 11 chains, at 93.30 ft. per mile,

199.431

At this station this line unites with the line by the north side of Sugar run, at No. 293, which stands on the east bank of the Old gap branch of the Juniata, thence to No. 382, distance 3 miles 27 chains, 20 feet per mile, (to point of hill,)

66.75

Thence to No. 400, 54 chains—level to head of basin (nearly,)

.8

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Length of this route 18 miles 54 chains.

Descent 1419.281

Between these two routes there is much similarity, each having a share of steep rocky ground. The first would be decidedly the most favorable, except that the first  $5\frac{1}{2}$  miles must be graduated at  $1\frac{1}{2}$  degrees.

*Third route, by the south side of the turnpike road.*

Beginning at the same point and pursuing the same course as the second route, till it reaches the dividing ridge near the coal banks, and then turning to the right the line crosses the turnpike road about half a mile east of Lemon's tavern. This route has much of a mountainous character, and a great share of unfavorable northern exposure, as the line runs for several miles on steep northern slopes of the mountain, and traverses up and down the steep rocky sides of several deep narrow ravines, which penetrate far into the northern side of the Allegheny ridge, which for several miles places the road in a remote and unfavorable situation to be of much use to the adjoining country, and might be considered a dreary route for a public highway.

From 18 to No. 393, distance 14 miles 5 chains at $1^{\circ}$	
or 92 feet per mile, to bridge above Duncan's,	1293.75
Thence to No. 463, 2 miles 50 chains, 34.46 feet per mile,	
along turnpike road	93.66
To the bridge which it crosses and joins the Sugar run line	
at No. 343, south of Hollidaysburg—thence to No. 382,	
1 mile 37 chains, grade 20 feet per mile, (to point of	
hill,)	29.25
Thence to No. 400, 54 chains, level to head of basin,	
(nearly,)	.6

Length of this route 18 miles 66 chains. Descent, 1417.466

These three routes commence at a point very much to the north of a direct line, and as much out of the desired direction. Then turning from the beginning, (except the Sugar run route,) to the south-west and south-east, crosses the turnpike road within the first 4 miles in both directions. And the eastern routes, more especially the southerly one, occupies the same neighborhood now accommodated with a turnpike road, and more towards the eastern end, these lines run along the turnpike, and within a few chains of it for about four miles to the termination.

From each of those summits one entire route has been explored, and located on each side of the Conemaugh to Johnstown.

The route from Bob's creek summit is continued on the south east side, and the route from Sugar run summit runs on the same side to the  $14\frac{1}{2}$  mile bench, when both lines unite, and the line from sugar run summit crosses to the west side of the Conemaugh, which it pursues to Johnstown. The route from Bob's creek west, commences at the Cucumber bench and is continued 10 miles at a graduation of one degree. A part of the route is winding, and some parts stony and rocky; the slope of the cross section is generally less than 20 degrees. The line faces the northwest and

west, and is on very good ground for a road. Beginning at the summit bench,

Thence 10 miles at a grade of 92 feet per mile descent 920 feet

Thence 20 chains do 60 feet per mile do 15

Distance 10 miles, 20 chains to the junction descent 985 feet

The route from Sugar run summit west, commences at No. 18, as stated in the second and third routes east from said summit. The first  $3\frac{1}{2}$  miles of this line is very crooked, by passing in succession the ridges and ravine on the north side of the mountain, which give rise to the head waters of Clearfield river; at the 4 mile tree, the line crosses the turnpike road, and from thence the direction of the line is more favorable to the  $14\frac{1}{2}$  mile tree, where it unites with the east line. Though some parts are very winding and other parts stony, the section slope is generally less than  $20^\circ$ . The line faces the north and north-west, and west, and is a tolerable route.

From No 18 to 60 dist. 3 m. 20 c, grade 12 ft. per m. descent 27 ft.

Thence to 87 1 1 92 93.15

95 24 level crossing a ridge

147  $5\frac{1}{2}$  m. ch, 3  $3\frac{1}{2}$  92 join 1st line 188.25

Thence to the junct'n 9 50 450

Dist to the junction 14  $48\frac{1}{2}$  chains descent to, the  $14\frac{1}{2}$  mile bench, feet 758.175

As all the routes from the proposed basins on the Juniata will meet at the above junction, the distance from each of those basins to that junction will stand as follows:

#### *Routes by Bob's Creek Gap.*

First route, from the proposed basin at Frankstown, by Newry and the northside of Poplar run, to Bob's creek summit bench,

21 m. 70 c.

Distance from Bob's creek summit bench to the junc. 10 m. 20 c.

32 m. 19c.

Total distance by Newry to the Conemaugh

Second route, from the proposed basin at Poplar run by Newry, and the north side of Poplar run to Bob's creek summit bench,

18 m. 16c.

Distance from Bob's creek summit to the junction, 10 m. 20c.

28 m. 36 c.

Total distance by Newry to the Conemaugh,

Third route from the proposed basin opposite M'Kee's or the Cove gap, by the south side of the Blue Knob, to the bench on Bob's creek summit,

16 m. 46c.

Distance from Bob's creek gap bench to the junction 10 m. 20c.

Total distance by the Blue Knob to the Conemaugh, 26 m. 66c.

*Routes by Sugar Run summit.*

First route, from the proposed basin near Frankstown, by the north side of Sugar run, to Sugar run summit, 15 miles

Distance from Sugar run summit bench to the junction, 14 miles 40 chains

Total distance by the north side of Sugar run to the Conemaugh, 29 miles 40 chains

Second route, from the proposed basin near Frankstown, by the north side of the turnpike to Sugar run summit, 18 miles 54 chains

Distance from the Sugar run summit No. 18, to the junction bench 14 miles 48½ ch's

Total distance by the north side of the turnpike road to the Conemaugh 33 miles 22½ ch's

Third route, from the proposed basin near Frankstown, by the south side of the turnpike road, to No. 18, near the Sugar run summit, 18 miles 66 chains

Distance from No. 18, near Sugar run summit to the junction bench, 14 miles 48½ chains

Total distance by the south side of the turnpike, by Sugar run summit, to the junction, 33 miles 34½ chains

From the junction of the lines to the proposed basin, at the north branch, the distance common to any route is 1 mile 62 chains. Continuing from the 14½ mile bench, at the junction of the lines, the following grades and distances are ascertained between it and Johnstown.

From the junction to the North Branch	1 m.	62 ch.	
grade 1½ feet per mile			24.85
Thence from the North Branch,	3	18	
grade 10 feet per mile			25.15
Thence	3		
grade 34 feet per mile			72
Thence, (across the neck)	1	22	
grade 60 feet per mile			76.5
Thence	8	58	
grade 24 feet per mile			209.4

Distance to Johnstown on the W. side, 18 miles, descent 407.9

From the 10½ mile bench, on the south east side, the grades and distances are as follow, viz.

Thence to No. 307, dist.	1 m.	20 ch.	grade 46 ft per m.	57.50
" 427,	4	40	10	45
" 720,	11	0	24	264
" 773,	2	0	40	80
Thence to the bridge in Johnstown	33		45	18.64
Distance to Johnstown on the east side,	19		13 descent,	465.14

Although it has been deemed necessary to survey and grade a route on each side of the Conemaugh to Johnstown, as a basis to work from, but one route will be necessary on a final location. From the junction of the routes, the west side of the river is the most favorable for a road, for some distance below the south fork. But in order to keep the road in the straightest direction, and on the best ground, it will be necessary to take parts of each line; for by cutting off several peninsulas and by crossing the Conemaugh two or three times on bridges, the road will be much shortened and improved, and great expense will be saved by thus avoiding the vertical rocky precipices, which generally form the boundaries of the river, on the outside of all those deep curves. The distance from the junction of the lines down the Conemaugh to Johnstown, on a final location, will not exceed seventeen and a half miles, and the expense will probably be about equal to the average cost per mile generally.

With this report are presented, a set of maps accurately drawn from the surveys, on which are delineated the routes herein recommended; and the mile benches numbered east and west, from each summit, to the proposed basin, or termination of each route, as referred to in the following estimates.

In the following estimates of the expense of constructing a rail road, the great additional convenience it would be to the public, to have a M'Adamized turnpike road by the side of the rail road, which should have the same grade, and which in no place should exceed one degree, has been considered of sufficient importance to give the road an additional width sufficient for that purpose; and the present surveys and estimates offer sufficient evidence of the practicability and economy, and for recommending this opportunity for making such a road across the Allegheny mountains as has never been made in the United States.

The width sufficient for this purpose is computed at 40 feet between the side drains, and 36 feet of which is to be paved. As all these routes are mostly through thick forests, the following preparations previous to excavation, will be necessary.

Grubbing and clearing the width of the road foundation	40 feet
Chopping and clearing 10 feet on each side of the foundation	20
Chopping down the timber for 100 feet on each side of the road to prevent accidents	200

The quantity of excavation and embankment is computed from the angle of a cross section of the road which has been taken at every station. Where the section slope is less than twenty degrees, the back slope of the excavation is computed at sixty degrees. But where the section slope exceeds twenty degrees, and the ground is firm and rocky, the back cutting slope is supposed to stand nearly perpendicular; and in all cases an excavation of thirty feet wide is computed to be sufficient to make the road forty feet wide, besides a drain or ditch of four feet wide on the upper side to convey the water to the culverts and stone drains, which

are to be placed under the foundation of the road at convenient and proper distances, to keep it firm and dry; and where necessary, a drain is to be excavated on each side for the same purpose. Embankments are computed to have a slope of eighteen inches base to one foot perpendicular, and are allowed in all cases, except where the excavation in the road will fill an embankment within one hundred feet of it.

The bed of the road being properly shaped and prepared, is to be paved with broken stone 16 inches deep and 36 feet wide, the whole to be done on the M'Adamized plan.

Of this width a rail road with double tracks will occupy, viz. 3 feet for an outside walk, 4 feet for each set of tracks, and 5 feet between, then 16 feet and a M'Adamized turnpike by the side of it the remaining 20 feet.

Among the various plans for a rail road, that at the Mauch Chunk coal mines is perhaps the cheapest, and at the same time answers for a very extensive business. It is constructed as follows: The road being prepared, oak sleepers, 7 feet long, are laid across the road, bedded on stone, and level with its surface, and four feet apart; into which are keyed the side rails of white pine, 4 by 6 inches, and 16 feet long, and placed parallel,  $3\frac{1}{2}$  feet apart, (which is the width between the wheels of the carriages); on the inner edge of these are plates of rolled iron,  $1\frac{1}{2}$  inches wide by  $\frac{3}{4}$  inch thick, for the wheels to run upon. A single track thus made cost \$3050 per mile.

But a more substantial and durable railway is recommended. Prepare stone supports (or sleepers) about twenty inches square, and about two and a half feet long, with the upper end of each properly cut, and drilled eight inches deep, to receive a wooden plug. Place these stones in four parallel lines, and five feet apart, in a direction of the road, the upper or cut end of each to be level with the pavement of the road. On these, place the side rails of locust timber 6 by 10 inches square, and 15 feet long, to be secured to the stone supports by inch bolts, driven through into the wooden plugs in the stones. Upon the inner edge of these side rails, of each set of tracks, plates of rolled iron, two inches by half an inch, are secured by spikes or screws (counter sunk) once in about three feet—the whole to be done in the best manner.

The following is an estimate of one mile of this description of double tracks, viz:

4224 stone supports, cut, drilled and set, at 70 cents each	2956 80
1418 pieces of locust timber prepared and delivered at 75 cents each	1063 50
30 tons of iron plates drilled and delivered at \$100	3000
4 tons of bolts made and delivered at \$1 50	600
One ton of spikes do	200
Amounting (inclusive of workmanship) to	7820 30

An estimate of the route from Bob's creek gap, by Newry to the proposed basin at Frankstown, beginning at the Cucumby bench.

*First Mile.*

Grubbing 40 feet wide, 5 acres at \$100 per acre	500	
Chopping and clearing 10 feet each side, 2½ acres at 16 dollars,	40	
Chopping down timber, 100 feet each side, 25 acres at 3 dollars per acre,	75	
		<hr/> \$615

15° average slope of cross section.

Excavation 27912 yards at 15 cents,	4186 80	
Ten stone drains under the foundation of the road at \$30	300	
Paving the road 36 feet wide and 16 inches deep, on M'Adam's plan, 10200 perches, at 50 cents	5100	
		<hr/> \$10201 80

*Second Mile.*

Grubbing, clearing and chopping, preparatory as above	\$ 615	
11° average slope of section.		
Excavation 19264 yards at 14 cents	2696 96	
Embankment 1000 yards at 14 cents	140	
One culvert	150	
Nine stone drains at \$30	270	
Paving the road 10200 perches, at 50 cents	5100	
		<hr/> \$8971 96

*Third Mile.*

Grubbing, clearing and chopping, preparatory	615	
19° average slope of section.		
Excavation 37817 yards at 14 cents	5294 38	
Embankment 1500 yards at 14 cents	210	
Two culverts at \$150 each	300	
Eight stone drains at \$30 each	240	
Paving the road 10200 perches at 40 cents	4080	
		<hr/> \$10739 38

*Fourth Mile.*

Grubbing, clearing and chopping preparatory	615	
average 19 deg. slope of section.		
Excavation 37817 yards at 18 cents	6807 06	
10 stone drains at \$30	300	
Paving the road 10200 perches at 30 cents	3060	
		<hr/> \$10782 06

*5th Mile. Passes Long-Lollow.*

Grubbing, chopping and clearing preparatory,	615	
25 deg. average slope of section-		
Excavation 41066 yards at 18 cents	7391	88
Embankment 3000 yards at 14 cents	490	
One bridge or culvert	400	
Nine stone drains at 30 dollars	270	
Paving the road 10200 perches at 30 cents	3060	
		<hr/> \$12156 88

*6th Mile.*

Grubbing, clearing and chopping preparatory	615	
23° average slope of section.		
Excavation 37252 yards at 18 cts.	6705	36
Embankment 3000 yards at 14 cts.	420	
2 culverts at \$150,	800	
8 stone drains 30,	240	
Paving the road, 10200 perches at 30 cts.	3060	
		<hr/> \$11346 36

*7th Mile. Passes Castello's farm.*

Grubbing, clearing and chopping, amount	515	
20° average slope of section.		
Excavation 40767 yards at 18 cts.	7327	26
Embankment, 5700 yards at 14 cts.	798	
2 culverts at \$150,	300	
8 stone drains, at \$30,	240	
Paving the road, 10200 perches at 30 cts.	3060	
		<hr/> \$12240 26

*8th Mile.*

Grubbing, clearing and chopping	615	
17° average slope of section.		
Excavation 32674 yds at 18 cts	5,881	32
10 stone drains at 30 dollars	300	
Paving the road 10,200 perches at 30 cts	3,060	
		<hr/> 9,856 32

*9th Mile.*

Grubbing, clearing and chopping	616	
16° average slope of section.		
Excavation 35199 cubic yds at 16 cts	5,631	84
Embankment 6000 yds, at 14 cts	840	
3 culverts at \$150	450	
7 stone drains at \$30	210	
Paving the road 10200 perches at 40 cts	4,080	
		<hr/> 11,326 84



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## 10th Mile.

Grubbing, clearing and chopping	615	
26° average slope of section.		
Excavation 42972 yds at 18 cts	7,734	96
Embankment 3000 yds at 14 cts	420	
3 culverts at \$150	450	
7 stone drains at \$30	210	
Paving the road, 10200 perches at 30 cts	3,060	
	<hr/>	12,489 96

## 11th Mile.

Grubbing, clearing and chopping	615	
18° average slope of section.		
Excavation 35199 yds at 18 cts	6,335	82
Embankment 1500 yds at 14 cts	210	
One culvert	150	
Nine stone drains	270	
Paving the road 10200 perches at 30 cts	3,060	
	<hr/>	10,540 82

## 12th Mile.

Grubbing, clearing and chopping	300	
26° average slope of section.		
Excavation 40707 cubic yds at 18 cts	7,327	26
Embankment 6000 cubic yds at 14 cts	840	
4 culverts at \$150	600	
6 stone drains at \$30	180	
Paving the road 10200 perches at 50 cts	5,100	
	<hr/>	14,547 26

## 13th Mile.

Grubbing, clearing and chopping	200	
24° slope of section, stony,		
Excavation 39' 60 yds at 18 cts	7,048	80
10 stone drains at \$30	300	
Paving the road, 10200 perches at 50 cts	5,100	
	<hr/>	12,648 80

## 14th Mile.

Grubbing, clearing and chopping	300	
20° average slope of section.		
Excavation 407.7 yds at 16 cts	6,513	12
Embankment 3600 yds at 14 cts	504	
2 culverts	350	
8 stone drains at \$30	240	
Paving the road 10200 perches at 50 cts	5,100	
	<hr/>	13,607 12

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## 15th Mile, Passing Malone's farm:

Grubbing, clearing and chopping	300	
20° average slope of section.		
Excavation 40707 yds at 18 cts	7,327	25
Embankment 10000 yds at 14 cts	1,400	
3 culverts	500	
7 stone drains	210	
Paving the road 10200 perches at 50 cts	5,100	
		<hr/> 14,837 20

## 16th Mile. 1 mile 17 chains to the bench at Newry.

Grubbing and clearing light being mostly fields, 50		
8° average slope of section.		
Excavation, 16318 cubic yards at 10 cts.	1631	80
Embankment, 8500 at 14 cts.	1190	
1 culvert	150	
9 stone drains,	270	
Paving the road, 12368 perches at 60 cts.	7420	80
		<hr/> 10712 60

16 Miles. 17 chains distance from Bob's creek bench to Newry.—Total expense, \$186,799 25

## 17th Mile.

Grubbing very light, being old fields &c.	20	
6° average slope of section.		
Excavation, 9845 cubic yards at 10 cts.	984	40
Embankment 1000 yards at 14 cts.	140	
1 culvert,	200	
9 stone drains	270	
Paving the road, 10200 perches at 50 cts.	5100	
		<hr/> \$6714 50

## 18th Mile.

Grubbing, clearing and chopping, light	500	
20° average slope of section.		
Excavation 40707 yards at 14 cts.	5698	98
Embankment, 4500 yards at 14 cts.	630	
4 culverts, at \$150,	600	
6 stone drains, at \$30,	180	
Paving the road 10200 perches at 30 cts.	3060	
		<hr/> \$10468 98

## 19th Mile.

Grubbing, clearing and chopping, light	300	
25° average slope of section,		
Excavation, 37252 cubic yards at 15 cts	5587	80
Embankment, 5100 at 14 cts.	714	
3 culverts	450	
7 stone drains at \$30	210	
Paving the road, 10200 perches at 30 cts]	3060	
		<hr/> \$10321 80

*20th Mile.*

Grubbing, clearing, &c. light, part field, 12° average slope of section.	300	
Excavation, 21223 yards at 10 cts.	2132	30
Embankment, 5000 at 14 cts.	700	
2 culverts	300	
8 stone drains at \$30,	240	
Paving the road, 10200 perches at 50 cts.	5100	
	<hr/>	88772 30

Thence 61 chains to Messrs. White & Olmsted's basin.

Grubbing, clearing and chopping 15° average slope.	200	
Excavation, 21282 yards at 10 cts.	2128	20
8 stone drains	240	
Paving the road, 7778 perches at 50 cts.	3889	
	<hr/>	86457 20

*21st. Mile.—(Over the bottoms to head of basin.)*

Average 2½ feet excavation and embankment including side-drains, 19550 yds at 14 cts	2737	
5 stone drains	150	
Stone bridge over the Juniata	500	
Paving the road, 10200 perches at 60 cts.	6120	
	<hr/>	89507

21 miles 79 chains to Frankstown basin, and expense, \$239041 46

An estimate of the expense of the route from Bob's creek gap by way of Newry, to the basin proposed at the mouth of Poplar run.

By the last estimate the distance is 16 miles 17 chains from Bob's creek gap to Newry, and the estimated expense,		\$186,799 68
One mile 76 chains all bottom land and im- proved from Newry to the basin,		
Excavation 22,880 cubic yards at 10 cents	\$2288	
Embankment 2000	280	
One culvert	200	
Ten stone drains	300	
Paving the road 19,890 perches at 60 cts	11954	
	<hr/>	315,002

Making the length of this route from Bob's creek gap 18 miles 13 chains to the basin at Poplar run, and the expense

\$201,801 68

The expense of constructing the road from Bob's creek gap by the south side of the Blue Knob to the basin opposite M'Kee's gap, is stated as follows, viz. Beginning at the Cucumber bench:

*1st Mile.*

Grubbing, clearing and chopping (heavy)	615	
15° average slope of section.		
Excavation 27912 yards at 15 cents	4186	80
Ten stone drains	300	
Paving the road 10200 perches at 50 cts	5100	
	<hr/>	10,201 80

*2d Mile.*

Grubbing, clearing and chopping, amount	615	
11° average slope of section.		
Excavation 19364 yards at 14 cents	2696	96
Embankment 1000	140	
One culvert	150	
Nine stone drains	270	
Paving the road 10200 perches at 50 cts	5100	
	<hr/>	8971 96

*3d Mile.*

Grubbing, clearing and chopping, amount	615	
8° average slope of section.		
Excavation 13458 yards at 14 cents	1884	12
Embankment 1000 yds at 14	140	
Ten stone drains	300	
Paving the road 10200 perches at 50 cts	5100	
	<hr/>	8039 12

*4th Mile.*

Grubbing, chopping and clearing	450	
10° average slope of section.		
Excavation 17274 yards at 15 cents	2591	10
Embankment 2500	350	
Ten stone drains	300	
Paving the road 10200 perches at 50 cts	5100	
	<hr/>	8791 10

*5th Mile.*

Grubbing, clearing and chopping (light)	500	
10° average slope of section.		
Excavation 17274 cubic yards at 15 cents	2591	10
Embankment 2,500 yards at 14 cents	350	
Three culverts	450	
Seven stone drains	210	
Paving the road 10200 perches at 50 cents	5100	
	<hr/>	9201 10

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*6th Mile.*

Grubbing, clearing and chopping, amount 30° average slope.	400	
Rocky excavation 50892 c yds at 20 cts	10178	40
Embankment 2000                      14	280	
One culvert	150	
Nine stone drains	270	
Paving the road 10200 perches at 30 cents	3060	
	<hr/>	14338 40

*7th Mile.*

Grubbing, clearing and chopping, thin timber, 400 30° average slope.		
Rocky excavation 50892 yards at 20 cts	10178	40
Ten stone drains	300	
Paving the road 10200 perches at 30 cents	3060	
	<hr/>	13938 40

*8th Mile.*

Grubbing, clearing and chopping 10° average slope.	400	
Rocky excavation 17274 yards at 18 cts	5109	32
Embankment 2000 yards at 14 cents	280	
Ten stone drains	300	
Paving the road 10200 perches at 40 cents	4080	
	<hr/>	8169 32

*9th Mile.*

Grubbing, clearing and chopping 15° average slope.	400	
Rocky excavation 17274 cubic yds at 18 cts	5109	32
Embankment 2500                      14	350	
Two culverts	300	
Eight stone drains	240	
Paving the road, 10200 perches at 50 cents	5100	
	<hr/>	9499 32

*10th Mile.*

Grubbing, clearing and chopping, amount 15° average slope.	500	
Excavation 27912 cubic yards at 15 cents	4186	80
Embankment 4500 cubic yards at 14 cts	630	
One culvert	150	
Nine stone drains	270	
Paving the road 10200 perches at 50 cents	5100	
	<hr/>	10836 80

*11th Mile.*

Grubbing, chopping and clearing, amount 18° average slope	8500	
Excavation 23447 yards at 15 cents	3517	05
Embankment 12000 yards at 14 cents	1680	
Three culverts	600	
Paving the road 10200 perches at 50 cents	5100	
	<hr/>	11197 05

*12th Mile. Cleared land.*

16 deg. average slope.		
Excavation 30238 cubic yards at 15 cents	4535	70
Embankment 12000                      14	1680	
Three culverts	500	
Seven stone drains	210	
Paving the road 10200 perches at 50 cents	5100	
	<hr/>	12025 70

*13th Mile.*

Grubbing, clearing and chopping, light 23 deg. average slope.	8200	
Excavation, 37252 yards at 18 cents	6,705	36
Embankment 20,000 yards at 14 cents	2,800	
Two culverts	400	
8 stone drains	240	
Paving the road 10,200 perches at 50 cts	5,100	
	<hr/>	15,445 36

*14th Mile.*

Grubbing, clearing and chopping 24° average slope.	200	
Excavation 39160 yds at 15 cts	5,874	
Embankment 7000 yds at 14 cts	980	
2 culverts	400	
8 stone drains	240	
Paving the road 10200 perches at 60 cts	6,120	
	<hr/>	13,814

*15th Mile.*

Grubbing, clearing and chopping (part cleared) 19 deg. average slope.	300	
Excavation 37817 yds at 15 cts	5,672	55
Embankment 10000 yds at 14 cts	1,400	
3 culverts	600	
7 stone drains	210	
Paving the road 10200 perches at 60 cts	6,120	
	<hr/>	14,302 55

## 16th Mile.

Grubbing, clearing & chopping (part cleared)	150	
8 deg. average slope,		
Excavation 13458 yds at 10 cts	1,345	80
Embankment 8500 yds at 14 cts	1,190	
3 culverts	500	
7 stone drains	210	
Paving the road 10200 perches at 60 cts	6,120	
		9,515 80
46 chains over bottom land to the head of proposed basin.		8 deg.
Excavation 7738 cubic yds at 10 cts	773	80
5 stone drains	150	
Paving road 5865 perches at 60 cts	3,519	
		4,448 80

16 miles 46 chs. and making the expense of this route \$182,730 48

NOTE—It was considered that more or less of walling would be necessary along the steepest parts of each route, but that in such cases the reduced width of the excavation would compensate for laying the wall.

The route by the north side of Sugar run, estimated, beginning at White Oak bench, on the Sugar run summit, and from thence to the basin near Frankstown, viz.

## 1st Mile.

Grubbing, clearing and chopping, heavy,	615	
11° section slope.		
Excavation, 19264 yards at 14 cts.	2696	96
Embankment, 1000 yards at 15 cts.	150	
2 culverts,	300	
6 stone drains	180	
Paving the road 10200 perches at 60 cts	6120	
		\$10061 96

## 2d. Mile. Stony.

Grubbing, clearing and chopping, heavy,	700	
13° section slope.		
Excavation, 23447 yards at 20 cts,	4689	40
Embankment, 2000 yards at 15 cts.	300	
16 stone drains, wet ground, at \$30	480	
Paving the road, 10200 perches at 30 cts.	3060	
		\$9229 49

## 3d Mile. Stony and thick laurel.

Grubbing, chopping and clearing, very heavy	750	
11° section slope.		
Excavation, 19264 yards at 20 cts.	3852	80
Embankment, 2500 yards at 15 cts.	375	
2 culverts	300	
1 bridge or culvert,	400	
8 stone drains,	240	
Paving the road, 10200 perches at 30 cts.	3060	
		\$8977 80

*4th Mile. Stony.*

Grubbing, clearing and chopping, heavy, 10° section slope.	615	
Excavation, 35199 yards at 20 cts.	7039	80
Embankment, 500 yards at 15 cts.	75	
1 culvert,	150	
10 stone drains,	300	
Paving road, 10200 perches at 30 cts.	3060	
	<hr/>	\$11239 80

*5th Mile. Stony.*

Grubbing, clearing and chopping, middling, 23° section slope.	600	
Excavation 57052 yards at 20 cts.	11410	40
10 stone drains	300	
Paving the road, 10200 perches, at 30 cts	3060	
	<hr/>	\$15370 40

*6th Mile. Stony.*

Grubbing, clearing and chopping, heavy, 26° section slope.	700	
Excavation, 42972 yards at 18 cts.	7734	96
Embankment, 600 at 14 cts.	84	
10 stone drains,	300	
Paving the road, 10200 perches at 40 cts.	4080	
	<hr/>	\$12898 96

*7th Mile.*

Grubbing, clearing and chopping, middling, 29° section slope.	600	
Excavation, 40707 yards at 15 cts.	6106	05
Embankment, 1000 at 15 cts.	150	
10 stone drains,	300	
Paving the road, 10200 perches at 40 cts	4080	
	<hr/>	\$11236 05

*8th Mile.*

Grubbing chopping and clearing (middling), 19° section slope.	500	
Excavation 37817 cubic yards at 15 cents	5672	55
Embankment 500 15	75	
One culvert	150	
Nine stone drains	270	
Paving the road 10200 perches at 50	5100	
	<hr/>	\$11,767 55

*9th Mile. Bottom land.*

Grubbing, clearing and chopping 6 deg. section slope.	300	
Excavation 9845 cubic yards at 12½ cts	1230	62½
Embankment 500 12½	62	50
One culvert	150	
Eight stone drains	240	
Paving road 10200 perches 60	6120	
	<hr/>	\$8103 12½



*10th Mile.* Bottom land.

Grubbing and clearing (light)	75	
Level, excavation to raise road,		
Ditching and embanking 8820 yards at 10 cts	882	
One bridge over Old Gap branch	600	
Paving the road 10200 perches	60	6120
		<hr/> \$7677

*11th Mile.*

Grubbing and clearing (light)	300	
9 deg. section slope.		
Excavation 23447 yards at 14 cents	3282	58
Embankment 2000 14	280	
Two bridges over Old Gap branch	1200	
Six stone drains	180	
Paving the road 10200 perches at 56 cts	5100	
		<hr/> \$10342 58

*12th Mile.*

Grubbing, chopping and clearing (light)	300	
9 deg. slope of section.		
Excavation 15340 cubic yards at 11 cts	1687	40
Ten stone drains	300	
Paving the road 10200 perches at 50	5100	
		<hr/> \$7387 40

*13th Mile.* Passes Hollidaysburg.

Grubbing and clearing (light)	200	
10 deg. section slope.		
Excavation 17274 yards at 10 cts	1727	40
Ten stone drains	300	
Paving the road 10200 perches at 60 cts	6120	
		<hr/> \$8347 40

*14th Mile.*

Grubbing, clearing and chopping (light)	200	
4 deg. section slope.		
Excavation and side drains and ditches 7040		
cubic yards at 10 cts	704	
Ten stone drains	300	
Embankment 2000 cubic yards at 14 cts	280	
Paving the road 10200 perches at 60	6120	
		<hr/> \$7604

*15th Mile.* Extends quite to the proposed basin.

Grubbing, clearing and chopping (light)	200	
6 deg. section slope.		
Excavation 9845 cubic yards at 10 cts	984	50
Embankment 2500 14	350	
Bridge over Brush run	400	
Ten stone drains	300	
Paving the road 10200 perches at 50 cts	5100	
		<hr/> 7334 50

Making the expense of the Sugar run route amount to \$147,577 92

The route by the north side of the turnpike road estimate: Beginning at No. 18, on the sugar run summit, and thence by Burgoon's coal bank, and along the northerly side of the turnpike road, thence swings round to the north and northwest into the valley of Spencers run, thence down that valley, until it joins the line from the north side of Sugar run at the 11th mile bench, thence along the sugar run line to the proposed basin at Frankstown.

1st distance, 26 chs. to the mile tree, of the first line.

Grubbing, chopping and clearing, heavy, 10 deg. section slope.	208
Excavation, 5,614 cubic yds. at 13 cts.	729 82
3 stone culverts, or small drains,	90
Paving the road 3,315 perches, at 50 cts.	1,657 50
	<hr/> \$2,685 32

2nd Mile.

Grubbing, chopping and clearing, heavy, 6 deg. section slope.	615
Excavation 9,845 cubic yds. at 13 cts.	1,279 85
Embankment 2,000 cubic yds. at 13 cts.	260
2 culverts (1 at Cole run,)	300
8 stone drains,	240
Paving the road, 10,200 perches at 50 cts.	5,100
	<hr/> \$7,794 85

3rd Mile. Stony.

Grubbing, chopping and clearing, very heavy, 18 deg. section slope.	700
Excavation 35,199 yds at 15 cts.	5,279 85
10 stone drains	300
Paving the road 10,200 perches at 40 cts.	4,080
	<hr/> \$10,359 85

4th Mile. Stony.

Grubbing, clearing and chopping, very heavy, 20 deg. section slope.	700
Excavation 40,707 cubic yds. at 15 cts.	6,106 03
Embankment, 1,000 cubic yds. at 15	150
3 culverts,	500
7 stone drains,	210
Paving the road 10,200 perches at 40 cts.	4,080
	<hr/> \$11,746 05

5th Mile. Rocky.

Grubbing, chopping and clearing, middling, 26 deg. section slope.	615
Excavation, 42,972 yds at 20 cts.	8,594 40
Embankment, 2,000 yds. at 14 cts.	280
10 stone drains, at 30 cts.	300
Paving the road 10,200 perches at 30 cts.	3,060
	<hr/> \$12,849 40

*6th Mile. Rocky:*

Grubbing, clearing and chopping, 31 deg. section slope.	615	
Excavation 53,835 cubic yds. at 20 cts	10,767	
Embankment 2,600 yds. 14 cts.	280	
10 stone drains,	300	
Paving the road 10500 perches at 30 cts.	3060	
		<hr/> \$15,022 00

*7th mile. Stony.*

Grubbing, chopping and clearing, heavy, 21 deg. section slope.	615	
Excavation, 34026 cubic yds. at 18 cts.	6024 68	
Embankment, 1500 yds. at 14 cts.	210	
10 stone drains,	300	
Paving the road 10200 perches at 30 cts.	3060	
		<hr/> \$10,209 68

*8th Mile.*

Grubbing, chopping and clearing, heavy, 15 deg. section slope.	615	
Excavation 27912 cubic yds at 15 cents	4186 80	
Embankment 2000 at 15 cents	300	
2 culverts	500	
8 stone drains	240	
Paving the road 10200 perches at 30 cts.	3060	
		<hr/> \$8701 80

*9th Mile.*

Grubbing, chopping and clearing, (heavy) 16 deg. section slope.	615	
Excavation 30238 cubic yds at 15 cts	4535 70	
Embankment 1000 15	150	
Ten stone drains	300	
Paving the road 10200 perches at 40 cts	4080	
		<hr/> \$9680 70

*10th Mile. Stony.*

Grubbing, chopping and clearing 19 deg. section slope.	615	
Excavation 37817 cubic yds at 16 cts	6050 72	
Embankment 1000 15	150	
Ten stone drains	300	
Paving the road 10200 perches 30	3060	
		<hr/> \$10175 72

*11th Mile.*

Grubbing, clearing and chopping, 16 deg. section slope.	615	
Excavation 30238 cubic yards at 14 cents	4233 32	
Embankment 1500 14	210	
Ten stone drains	300	
Paving the road 10200 perches at 40	4080	
		<hr/> \$9438 32

## CANAL REPORT.

*12th Mile.*

Grubbing, clearing and chopping	615	
17 deg. section slope.		
Excavation 32674 cubic yards at 14 cents	4574	36
Embankment 1500	14	210
Ten stone drains		300
Paving the road 10200 perches	40	4080
		<hr/> 29779 36

*13th Mile.*

Grubbing, chopping and clearing	615	
18 deg. section slope.		
Excavation 35199 cubic yards at 15 cents	5279	87
Embankment 1000	14	140
Ten stone drains		300
Paving the road 10200 perches at 40		4080
		<hr/> 310414 85

*14th Mile. Down the valley of Spencer's run.*

Grubbing and clearing. $\frac{1}{4}$ in field bottom	200	
Excavation and side ditches 7820 cubic yards		
at 10 cents	782	
Embankment 1000 cubic yards at 14 cents	140	
Two culverts		300
Eight stone drains		240
Paving the road 10200 perches at 50 cents	5100	
		<hr/> 26762

*At 15th Mile, 27 chains. (This joins the 11th mile of the Sugar run line.)*

Grubbing, &c. in the valley of Spencer's run,		
mostly cleared	100	
Excavation and side ditches 10459 cubic yards		
at 10 cents	1045	90
Embankment 10000 yards at 14 cents	1400	
One small bridge or culvert	200	
One bridge over Beaver dam branch of Juniata	400	
Six stone drains.	180	
Paving the road, 15643 perches at 60 cts a per.	8185	80
		<hr/> 311511 70

*16th Mile.*

Grubbing and clearing, light and thin	300	
9 deg. section slope		
Excavation 15940 cubic yds at 11 cts	1,687	40
10 stone drains		300
Paving the road 10200 perches at 50 cts	5,100	
		<hr/> 37,387 40

*17th Mile, Passes turnpike and Hollidaysburg.*

Grubbing and clearing, light	200	
10 deg. section slope.		
Excavation 17274 cubic yards at 10	1,727	40
10 stone drains		300
Paving the road 10200 perches at 60 cts	6,120	
		<hr/> 33,247 40

*18th Mile.*

Grubbing light and scattered	200
Excavation and ditches 7040 c. yds at 10 cts	704
Embankment 2000 yards at 14 cts	280
10 stone drains	300
Paving the road 10200 perches at 60 cts	6,120
	<hr/> 37,604

*19th Mile, Extends to the head of the basin.*

Grubbing and clearing scattered trees.	200
6 deg. section slope.	
Excavation 9845 cubic yds at 10 cts	984 50
Embankment 2500 cubic yds at 14 cts	350
Bridge at Brush run	400
10 stone drains	300
Paving the road 10200 perches at 50 cts	5,100
	<hr/> 37,334 50

Making the length of the line on the north side of the turnpike 18 miles and 54 chains, and the estimated cost of it amounts to \$177,804 90

The route from the Sugar run summit, by the south side of the turnpike road, to the proposed basin at Frankstown, estimated as follows.

Beginning at No. 18 on the Sugar-run summit,  
Thence 26 chains to the mile-tree on first line.

Grubbing, chopping and clearing, heavy	3208
10 deg. section slope	
Excavation 5,614 cubic yards at 13 cents	729 82
Three stone drains	90
Paving the road 3,315 perches at 50 cents	1,657 50
	<hr/> 2,685 32

*2nd Mile.*

Grubbing, chopping and clearing, heavy	3615
10 deg. section slope	
Excavation 17274 cubic yards at 13 cents	2,245 62
Embankment 1000 cubic yards at 13 cents	130
Ten stone drains	500
Paving the road 10200 perches at 50 cents	5,100
	<hr/> 8,390 62

*3d Mile, Stony.*

Grubbing, clearing and chopping, heavy	3700
13 deg. section slope	
Excavation 23,447 cubic yards at 15 cents	3,517 05
Embankment 1,500 c yards at 15 cents	225
Three culverts	600
Seven stone drains	310
Paving the road, 10,200 perches at 40 cents	4,080
	<hr/> 9,932 05

*4th Mile. Stony.*

Grubbing, clearing and chopping, heavy 27 deg. section slope.	\$700	
Excavation 44808 cubic yards at 18 cents	8,065	44
Embankment 5,000 c yards at 15 cents	750	
One culvert	200	
Nine stone drains	270	
Paving the road 10,200 perches at 40 cents	4,080	
	<hr/>	14,065 44

*5th Mile. Rocky.*

Grubbing, clearing and chopping 33 deg. section slope.	\$615	
Excavation 57,052 cubic yards at 20 cents	11,410	40
Ten stone drains	300	
Paving the road 10,200 perches at 30 cents	3,060	
	<hr/>	15,385 40

*6th Mile. Stony.*

Grubbing, clearing and chopping 31 deg. section slope.	\$615	
Excavation 53,835 yards at 20 cents	10,767	
Embankment 7,500 yards at 14 cents	1,050	
Three culverts (1 large)	700	
Seven stone drains	210	
Paving the road 10,200 perches at 30 cents	3,060	
	<hr/>	16,402 00

*7th Mile. Stony and rocky.*

Grubbing, clearing and chopping 33 deg. slope.	\$615	
Excavation 57,052 cubic yards at 20 cents	11,410	40
Ten stone drains	300	
Paving the road 10,200 perches at 30 cents	3,060	
	<hr/>	15,385 40

*8th Mile. Stony and rocky.*

Grubbing, clearing and chopping 25 deg. slope.	\$615	
Excavation 41,066 cubic yards at 18 cents	7,391	88
Embankment 5,000 cubic yards at 15 cents	750	
One culvert 12 feet span	300	
Nine stone drains	270	
Paving the road 10,200 perches at 30 cts.	3,060	
	<hr/>	12,386 88

*9th Mile. Stony.*

Grubbing, clearing and chopping 27 deg. slope.	615	
Excavation 44808 cubic yards at 18 cents	8065	44
10 stone drains	500	
Paving the road 10200 perches at 30 cents	3060	
	<hr/>	\$12040 44

# CANAL REPORT.

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## 10th Mile.

Grubbing, clearing and chopping	615	
18 deg. slope.		
Excavation 35199 yards at 15 cents	5279	85
10 stone drains	300	
Paving the road 10200 perches at 30 cents	3060	
		<hr/> \$9254 85

## 11th Mile.

Grubbing, clearing and chopping	615	
19 deg. slope.		
Excavation 37817 yards at 15 cents	5672	55
Blair's run embankment 2000 yds at 15 cts	300	
1 culvert	300	
9 stone drains	270	
Paving the road 10200 perches at 40 cents	4080	
		<hr/> \$11237 55

## 12th Mile.

Grubbing, clearing and chopping	400	
22 deg. slope.		
Excavation 35640 yards at 18 cents	6415	20
Embankment 2500 yards at 15 cents	375	
10 stone drains	300	
Paving the road 10200 perches at 40 cents	4080	
		<hr/> \$11570 20

## 13th Mile.

Grubbing, clearing and chopping	615	
27 deg. slope		
Excavation 44808 yards at 18 cents	8065	44
Embankment 2500 yards at 15 cents	375	
10 stone drains	300	
Paving the road 10200 perches at 30 cents	3060	
		<hr/> \$12415 44

## 14th Mile. Deep cut.

Grubbing, clearing and chopping	200	
15 deg. slope to deep cut.		
Excavation 27912 yards at 15 cents	4186	80
Embankment 3500 yards at 15 cents	525	
1 culvert	200	
9 stone drains	270	
Paving the road 10200 perches at 50 cents	5100	
		<hr/> \$10481 80

## 15th Mile.

Grubbing and clearing, light	100	
6 deg. excavation 9845 yards at 10 cents	984	50
Embankment 2500 yards at 14 cents	350	
1 bridge near Duncan's	500	
6 stone drains	180	
Paving the road 10200 perches at 60 cents	6120	
		<hr/> \$8284 50

**16th Mile.** Below Duncan's along turnpike,

Grubbing and clearing to widen turnpike	150	
Excavating and levelling turnpike 7820 yards at 10 cents	782	
Embanking at bridge 1500 yards at 14 cents	210	
Bridge below Duncan's	500	
Paving the road 16200 perches at 60 cents	6120	
		<hr/> \$ 7762

**17th Mile.** Along the turnpike.

Grubbing and clearing to widen the turnpike,	\$150	
Cutting down the turnpike near Walker's.		
Excavation 9000 cubic yards at 15 cents	1350	
Paving the road, 10200 perches at 60 cts	6120	
		<hr/> \$ 7620

Thence 40 chains to the 13 mile bench on the Sugar run line.

Grubbing and to widen the turnpike,	100	
Excavating and ditching 5000 c. yds at 10 cts,	500	
Embanking 3000 14	420	
4 stone drains	120	
Bridge over the Juniata near Hollidaysburg,	1200	
Paving the road, 4845 perches at 60 cts	2907	
		<hr/> \$ 5247

**18th Mile.**

Grubbing and clearing near the edge of the bottom,	200	
Slope 4 deg.		
Excavation and side drains 7040 c yds at 10 c.	704	
Embankment 2000 14	280	
Ten stone drains	300	
Paving the road, 10200 perches at 60 cts	6100	
		<hr/> \$ 7664

**19th Mile.** Extends to the head of the basin, (at Lawrie's) near Frankstown.

Grubbing and clearing,	200	
6 deg. section slope.		
Excavation 9845 cubic yards at 10 cts	985 50	
Embankment 2500 14	350	
Bridge over Brush run	400	
Ten stone drains	300	
Paving the road, 10200 perches at 50 cts	5100	
		<hr/> \$ 7934 50

**18 miles 66 chains,** distance by south side of turnpike to Frankstown, and the cost, **\$204,835 39**



# CANAL REPORT.

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The route from Rob's creek gap, westward estimated. Beginning at the Cucumber bench on the summit, and thence

## 1st Mile. Stony.

Grubbing, clearing and chopping (usually heavy) 615

17 deg. section slope.

Excavation 32674 cubic yds at 16 cts 5,227 84

Embankment 3000 do do at 14 cts 420

1 culvert 150

9 stone drains at \$30 270

Paving the road 10200 perches at 40 cts 4,080

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\$10,762 84

## 2d mile. Stony.

Grubbing, clearing and chopping 615

16 deg. slope

Excavation 30238 yards at 16 cents 4838 08

Embankment 500 yards at 14 cents 70

1 culvert 150

9 stone drains 270

Paving the road 10200 perches at 30 cents 3060

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\$ 9003 08

## 3d mile.

Grubbing, clearing and chopping (as usual) 615

12 deg. slope.

Excavation 21325 yards at 16 cents 3411 68

Embankment 2000 yards at 14 cents 280

3 culverts 500

7 stone drains 210

Paving the road 10200 perches at 30 cents 3060

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\$ 8076 68

## 4th mile. Stony.

Grubbing, chopping and clearing 615

21 deg. slope

Excavation 54026 yards at 18 cents 6124 68

Embankment 1500 yards at 14 cents 210

1 culvert 100

9 stone drains 270

Paving the road 10200 perches at 30 cents 3060

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\$10379 68

## 5th mile. Rocky.

Grubbing, clearing and chopping (heavy as usual) 615

Average slope 21 deg.

Excavation 34026 cubic yards at 20 cents 6805 20

Embankment 3000 cubic yards at 14 cents 420

3 culverts 200

9 stone drains 270

Paving the road 10200 perches at 30 cents 3060

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\$11870 20

## CANAL REPORT.

## 6th mile. Stony.

Grubbing, clearing and chopping		615
Average slope 19 deg.		
Excavation 37817 cubic yards at 18 cents		6807 06
Embankment 3000	14	420
1 culvert, large		200
9 stone drains		270
Paving the road 10200 perches at 30 cents		3060
		<hr/> \$11372 06

## 7th mile. Stony.

Grubbing, clearing and chopping		615
Average slope 16 deg.		
Excavation 30238 cubic yards at 18 cents		5442 84
Embankment 5000	14	700
2 culverts		300
8 stone drains		240
Paving the road 10200 perches at 30 cents		3060
		<hr/> \$110357 84

## 8th mile. Stony.

Grubbing, clearing and chopping		615
Average slope 11 deg.		
Excavation 19264 cubic yards at 18 cents		3467 52
Embankment 9000	14	1260
1 bridge over Trout run		500
9 stone drains		270
Paving the road 10200 cubic yards at 30 cts		3060
		<hr/> \$9172 54

## 9th Mile.

Grubbing, clearing and chopping, heavy		615
average slope 10 deg.		
Excavation 17274 cubic yards at 15 cents		2591 10
Embankment 1000	14	140
Two culverts		300
Eight stone drains		240
Paving the road 10200 perches	40	4080
		<hr/> \$7966 10

10½th Mile. (This corresponds with the 14½ miles on the north line.)

Grubbing, clearing and chopping, heavy		800
Average slope 10 deg.		
Excavation 21592 cubic yards at 14 cents		3022 88
Embankment 4000	14	560
12 stone drains		360
Paving the road 12750 perches	60	7650
		<hr/> \$12392 88

Making the length of the Bob's creek route west, to be ten miles twenty chains to the junction of the line near the Conemaugh, and the amount of the estimated cost;

\$100,853 88

# CANAL REPORT.

The route from Sugar run summit westward estimated: Begin  
ning at station No. 18 on said summit, and thence.

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## 1st mile.

Grubbing, clearing and chopping, as estimated 615 per mile,  
Average slope 8 deg.

Excavation, 13,458 cubic yds. at 15 cts.	2018 70
Embankment 3000 cubic yds. at 15 cts.	450
10 stone drains or sluices,	300
2 culverts, at \$ 150	300
Paving the road, 10200 perches at 50 cts.	5100

----- \$ 8783 20

## 2nd mile.

Grubbing, clearing and chopping, 615  
Average slope 10 deg.

Excavation, 17274 cubic yds. at 14 cts.	2418 36
Embankment, 2500 do at 15 cts.	375
2 culverts, at \$ 150	300
10 stone drains, at \$ 30	300
Paving the road 10200 perches at 50 cts.	5100

----- \$ 9,108 36

## 3rd mile.

Grubbing, clearing and chopping, 615  
Average slope 9 deg.

Excavation, 15,340 cubic yds. at 14 cts.	2147 60
Embankment, 2000 do do at 15 cts.	300
4 culverts, average \$ 150	600
3 stone drains, at \$ 30	240
Paving the road, 10290 perches at 50 cts.	51000

----- \$ 9,002 60

4th mile. Stony (crosses the turnpike road, at the beginning of the  
mile.)

Grubbing, clearing and chopping, per estimate, 615  
Average slope, 7 deg.

Excavation, 11632 cubic yds. at 18 cts.	1744 80
Embankment, 2000 do at 15 cts	300
2 culverts, average \$ 150	300
10 stone drains at \$ 30	300
Paving the road 10200 perches at 50 cts.	5 00

----- \$ 8359 80

## 5th mile. Stony.

Grubbing, clearing and chopping, heavy, 715  
Section slope, 7 deg.

Excavation, 11632 cubic yds. at 16 cts.	1861 12
Embankment, 1000 do at 14 cts.	140
10 stone drains,	300
Paving the road, 10200 perches at 40 cts	4080

----- \$ 7996 12.

*6th Mile and 8½ chains, (to 6 mile bench on first line.)*

Grubbing, clearing and chopping, heavy, slope 7 deg.	764	
Excavation, 12868 cubic yds. at 16 cts.	2058	48
Embankment, 1000 at 4 cts.	110	
2 culverts	300	
10 stone drains,	300	
Paving the road, 11284 perches at 40 cts.	4540	90
		<hr/> 38,076 48

*7th Mile. Stony,*

Grubbing, clearing and chopping, Slope 10 deg.	615	
Excavation, 17274 cubic yds. at 16 cts.	2763	84
Embankment, 1500 do at 16 cts.	240	
2 culverts,	300	
10 stone drains, at \$30	300	
Paving the road, 10200 perches at 40 cts.	4060	
		<hr/> 38298 84

*8th Mile, passing Lilley's mills.*

Grubbing, clearing and chopping average slope 12 deg	2615	
Excavation 21,323 cubic yards at 15 cents	3,198	45
Embankment 2,500 cubic yards at 15 cents	375	
Four culverts average \$150	600	
One bridge over Bear rock run	400	
Six stone drains	186	
Paving the road 10,200 perches at 50 cents	5,100	
		<hr/> 10,468 45

*9th Mile.*

Grubbing, clearing and chopping average slope 23 deg.	2615	
Excavation 37,252 cubic yards at 16 cents	5,960	32
Ten stone drains	300	
Paving the road 10,200 perches at 50 cents	5,100	
		<hr/> 11,975 32

*10th Mile.*

Grubbing, clearing and chopping average slope 14 deg.	2615	
Excavation 25,629 cubic yards at 16 cents	4,100	64
Embankment 2,000 cubic yards at 15 cents	300	
Three culverts (1 at \$200)	500	
Seven stone drains	210	
Paving the road 10,200 perches at 50 cents	5,100	
		<hr/> 10,925 64

## 11th Mile.

Grubbing, clearing and chopping average slope 20 deg.	\$615	
Excavation 40,707 cubic yards at 16 cents	6,513	12
Embankment 5,000 cubic yards at 14 cents	700	
One bridge over Ben's creek	400	
Ten stone drains	300	
Paving the road 10,200 perches at 40 cents	4,080	
	<hr/>	12,608 12

## 12th Mile.

Grubbing, clearing and chopping section slope 11 deg.	\$615	
Excavation 19,264 cubic yards at 14 cents	2,696	96
Embankment 1,000 cubic yards at 14 cents	140	
One culvert	150	
Ten stone drains	300	
Paving the road 10,200 perches at 60 cents	6,120	
	<hr/>	10,021 96

## 13th Mile. White-pine grove.

Grubbing, clearing and chopping, uncommon slope 10 deg.	\$1,000 per mile	
Excavation 17,274 cubic yards at 14 cents	2,418	36
Embankment 3,500 cubic yards at 14 cents	490	
One culvert or bridge for Beaverdam run	300	
Ten stone drains	300	
Paving the road 10,200 perches at 60 cts	6,120	
	<hr/>	10,628 36

## 14th Mile.

Grubbing, clearing and chopping, heavy slope 9 deg.	\$1,000	
Excavation 15,340 cubic yards at 14 cents	2,147	60
Embankment 1,000 cubic yards at 14 cents	140	
One bridge	300	
Ten stone drains	300	
Paving the road 10,200 perches at 60 cents	6,120	
	<hr/>	10,007 60

40 chains of the 15th mile, the junction of the lines.

Grubbing, clearing and chopping, lighter slope 4 deg.	\$300	
Excavation 4,000 cubic yards at 14 cents	560	
Embankment 3,000 cubic yards at 14 cents	420	
One bridge over Trout run	300	
Two culverts	300	
Five stone drains	150	
Paving the road 5,100 perches at 60 cents	3,060	
	<hr/>	5,090 00

Making 14 miles 48½ chains the length of this route, and the amount of its cost

\$140,350 55

The following abstract from the preceding estimate shews the distances, average cost per mile and cost of each route from the junction of the lines near the Conemaugh, across the mountain by way of each summit to each of the proposed basins.

ON THE JUNIATA.

*Routes by Rob's creek summit.*

1. Route by way of Newry to the basin near Frankstown, 32 miles 19 chs, at 10,543 48 per m. \$339,895 34
2. Route by Newry to the basin near Poplar run, 28 miles 33 chains, at \$10,652 05 per m. 302,655 56
3. Route by the south side of the Blue Knob to the Cove basin, 26 miles 66 chains, at 10,571 65 per mile, 283,584 46

*Route by the Sugar run summit.*

1. Route by the north side of Sugar run to the basin near Frankstown, 29 miles 48½ chains at 8391 19 per mile, \$248,451 80
2. Route by the north side of turnpike to the basin near Frankstown, 33 miles 22½ chains at 9559 59 per mile, 318,155 25
3. Route by the south side of turnpike to the basin near Frankstown, 33 miles 34½ chains at 10,325 24 per mile, 345,185 74

From the junction of the lines down the Conemaugh to Johnstown, 17 miles 40 chains at \$9500 per mile, 166,250

To the average cost per mile add the estimate cost of one mile of rail way, viz. \$7890 30, and the amount will be the average cost per mile on either of the above routes.

All of which is very respectfully submitted,

NATHAN S. ROBERTS,  
*Chief Engineer;*

No. 5.

*Report in the survey of basins, canal and rail-way routes, between the waters of Delaware and Susquehanna, by Moncure Robison, Engineer.*

To the canal commissioners of the state of Pennsylvania.

GENTLEMEN,

I have the honor to submit to you the following as a part of my report, on the different surveys and examinations which have been made by me during the past season, with a view to rail-roads, and to a water communication between the North branch of the Susquehanna river and the Delaware. The late period at which

my field duties were closed, prevents my furnishing at this time accompanying draughts and estimates. These are in preparation, and will be transmitted to your honorable board as soon as completed.

In consequence of the novelty of rail-roads in our country, misapprehensions appear to have existed as to the class of cases in which they are applicable. It may not be out of place, before proceeding to a description of field operations, to bestow some consideration on this subject.

It has been suggested that the cheapness of timber gave to us an advantage in the construction of rail-roads, which would so far diminish their first cost, as to recommend their construction in many situations, where in Europe they would be deemed unsuitable improvements; and it has been thought not only that a much smaller trade would justify a rail road in our country than has heretofore been deemed requisite in England, but likewise that much bolder experiments might be made by us, in overcoming ascents by graduation.

It is very readily admitted that the first cost of a plate rail-road in Pennsylvania, on which a horse will exert nearly the same useful effect as on the best constructed rail-roads of England, will require in general a much smaller investment of capital, and notwithstanding the necessity of more frequent repairs, would be justified by a trade proportionally smaller. It is believed however, that there is nothing in this circumstance which will authorize a *very material*\* deviation from the principles adopted by the most distinguished British engineers, in the plan and location of such works.

With them there is some difference of opinion as to the relative cost of transportation by locomotive engines and by horses, and the problem is complicated by the necessity of incurring an increased expense in the construction of rail-ways on which locomotive machinery is proposed. There is however, and ought to be but one opinion as respects graduation.

This is, that if horse power is to be employed, that graduation should be adopted on a rail-road as nearly as practicable, which is best suited to the anticipated trade; or in other words, which will render necessary the same number of horses to transport each way, with equal facility, the anticipated tonnage. If any facility beyond this point is afforded in one direction, it necessarily, and to the same extent operates as a difficulty in the way of transportation in the opposite direction.

On the Stockton and Darlington rail-way, it has been found by experiments with the Dynamometer, that a descent of  $\frac{1}{4}$  of an inch

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\* A *very material* deviation. Undoubtedly deviations impairing in some degree the value of an improvement are allowable where the cost of the improvement is diminished, but these deviations, as will be seen, must be slight, or the objects of the improvement in a great degree lost.

per running yard, or of eighteen feet per mile, is that on which it requires the same muscular effort of a horse to descend at a given rate with loaded waggons, or to return with empty. The waggons in these experiments were reduced to their minimum weight, and constituted about 25 per centum of the whole load. This of course forms the extreme point of *advisable* graduation in a rail-road. As the inequality between the ascending and descending traffic of a rail road becomes diminished, the road-way should in the same ratio approach to a level.

It will be agreed that the extent to which rail-roads could be introduced in most countries would be but small, were the ascent they could overcome limited by the graduation which would accord with these positions; and the ground over which they could be located, would be in general that on which a canal would be preferable. Accordingly public attention had been but very little drawn to them in England until within a few years past. The application of locomotive machinery in the beautiful experiment of the Stockton and Darlington rail-way and the introduction of inclined planes and stationary power or other lines of rail-way, have enlarged the scope and capability of rail-ways to a degree which some years since could not have been predicted, without incurring the reproach of an overshare of enthusiasm. A It is to these aids,

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A. The expensiveness of horse power for raising trains of waggons on the inclined planes of rail-ways, may be appreciated by the reflection, that if one pound suspended over a sheave will keep in motion two hundred pounds when started, on a level rail road, a horse can with equal facility draw two hundred pounds, or raise one: or what is in other words the same proportion; that as great an expenditure of power is required to raise a given tonnage one mile, as to transport it two hundred miles.

Fixed steam engines, where a trade is sufficient to justify powerful machinery, and to keep it constantly employed, diminish in a very large proportion, the cost of overcoming ascents. Was the business of a rail-road considerable enough, they would likewise present a far cheaper power than either locomotive engines or horses, for overcoming the resistance produced by friction. In but one instance however, that of the Hetton Colliery rail-way, have they been recommended exclusively of other power, by considerations of economy. The enormous business of this rail-road, and the regularity to which it has been found possible to reduce it, render them for every service on the line the most economical, and on other considerations the most advisable power.

A very different case is presented on a rail-way, on which the trade would be but limited and uncertain. For the inclined planes of such a road, fixed engines would be smaller, of course their attendance more expensive in proportion, than that of larger engines, and they must be kept in readiness to raise trains of waggons at an annual expense not a great deal less than would be required



to the cheapness of stationary power where a business of considerable extent can be commanded, and to the capability which locomotive engines possess within certain degrees of graduation, of being made to produce at all times, their maximum of useful effect, either in power, or in velocity; that the rail road must look for the largest developement of its advantages and resources. That it never can be advantageous to overcome considerable ascents by graduated rail roads, on which horse power is proposed, the following considerations abundantly prove.

The force exerted by a horse transporting a weight on a common road in overcoming an ascent, is of two kinds; that necessary to overcome the friction of the roadway, and that expended in lifting his load. It is only in economising the first of these forces, that the railway is made a labor saving machine: The last must always remain the same on an inclined plane of every kind, and continues a fixed quantity at the same angle of ascent on a country road, M'Adamized turnpike, or the most perfectly constructed rail-road.

Though therefore in the case of a level turnpike, its substitution by a railway has the effect of reducing the power requisite to produce a given effect to the tenth or twelfth part of what was previously required, yet the result arrived at is widely different, if an ascent be admitted in the railway, which would be scarcely sensible in a turnpike, and at any rate be attended with no serious disadvantage. The important bearing of this subject and its susceptibility of being settled with precision, will form an excuse for some further investigation.

Differences of opinion are entertained among professional men as to the power of a horse. The standard fixed by Mr. Watt, in his estimates of steam power is certainly too high; and while some late writers have estimated the power of a good horse travelling eight

to keep them constantly at work. Under these circumstances the toll at lifts to indemnify the proprietors of the rail-way, must on a ton of property be nearly in an inverse ratio with the business of the road.

Locomotive engines in this case will generally constitute the most advisable power, provided the ascent and descent of the railway can be overcome by such a rise and fall per mile as will admit of the engine urging on its load by the mere adhesion of the wheels. A considerable deduction it is true is to be made from their useful effect on account of the weight of the engine itself. But this is found to be more than counterbalanced by the expense of attendance and of dormant power in fixed engines not steadily employed; and compared with horse power they not only present a great gain in point of economy but the important advantage of exerting at all times their full force, on the steeper parts of the road in overcoming its greater inclination, on more gentle ascent or on descent, in urging forward the load with increased velocity.

hours per day at the rate of 24 miles per hour, as equal to raising 125 pounds suspended over a pulley, others have reduced his power of traction to 112 pounds. -- However this may be, the experiments of Messrs. Wood and Stephenson, with the Dynamometer have ascertained with certainty the force requisite to overcome friction on well constructed rail-roads. The conclusion at which they have arrived after a series of well conducted experiments under favorable circumstances, but such as are attainable in practice, is, that one pound suspended over a pulley will keep in motion 200 pounds on a level railway.

This fact is all that is necessary to determine the precise diminution of useful effects in forces of any kind, exerted on inclined planes, compared with that produced on levels. To ascertain the precise weight which can be kept in equilibrio on a plane, by a given weight suspended over a pulley, we have only to multiply this weight into the length of the plane, and to divide by its height, or in other words, to multiply the weight by the distance in feet in which the plane rises one foot. If we then ascertain by a common proportion the additional weight which must be suspended in order, to overcome the friction of this ascertained amount, we have at once the whole power required to produce a given effect.

For example, on a plane rising one foot in one hundred, or 52.8 feet per mile, 112 pounds suspended over a pulley would keep in equilibrio 11200 pounds, or five tons. To overcome the resistance produced by the friction of this quantity would require (supposing it the same on a level railway or an inclined plane,)  $\frac{1}{200}$  part of the amount, or 56 pounds more. The whole weight necessary to be suspended would be 168 pounds, and the useful effect of one pound would be equal to overcoming the resistance of  $66\frac{2}{3}$  pounds, that is to say,  $\frac{1}{3}$  of that produced on a level railway.

The following table will present the useful effect of a pound weight suspended over a pulley in overcoming resistance on rail-roads at different angles of inclination deduced from the foregoing reasoning: a glance at it will show the rapid diminution of useful effect at every increase of acclivity.

Distance in feet in which a rail way rises one foot	Rise per mile.	Useful effect of one pound suspended over a pulley.	Useful effect of a horse, supposing his power to 112 lbs. in pounds.	Useful effect of a horse in tons.
1000	5.28	166.67	18.667	8.33
900	5.87	163.64	18.327	8.13
800	6.60	160.00	17.920	8.00
700	7.54	155.56	17.422	7.78
600	8.80	150.00	16.800	7.50
500	10.56	142.86	16.000	7.14
400	13.20	133.33	14.933	6.67
300	17.60	120.00	13.440	6.00
200	26.40	100.00	11.200	5.00
100	52.80	66.67	7.467	3.33
60	88.00	46.15	5.169	2.31

The allowance for horse power given in the preceding table may possibly be supposed too small, whilst it will in general be deemed quite sufficient. It may however be a matter of some doubt whether on such rail-roads as it will be for a long time advantageous to construct in Pennsylvania, (wooden rails plated with iron bars.) as large a proportion of useful effect may be anticipated, as on the cast and wrought iron railways of England. The following formula presenting a more abstract view of the subject is therefore subjoined.

Supposing D the distance in which a rail way rises 1 foot.

H the power of a horse or the number of pounds he can raise, travelling  $2\frac{1}{2}$  miles per hour.

T the number of pounds he can draw when traveling at the same speed.

$DH^2$

Then  $\frac{H \times DH^2}{T} =$  the performance of a horse.

A comparison of the result of this formula with those given in the last column of the preceding table will serve to establish its correctness.

It must be observed that the preceding reasoning does not apply to the case of an undulating rail way, or one of *short* as well as slight ascents and descents. On such a rail way the greater occasional efforts of the horse are compensated by his alternations of light labor, and the advantage of bringing into play new muscles, balances the injurious effects arising from his being occasionally overloaded.

It may be worth while to add before leaving this subject, that experience, in the only case in our country in which it has been attempted to overcome considerable ascents by graduations is in perfect accordance with the foregoing views. The rail way of the Lehigh company at Mauch Chunk, overcomes a rise of 767 feet in eight and a quarter miles, averaging about one degree of acclivity per mile. I was informed by the intelligent gentleman to whom the affairs of the company are intrusted, that the fair performance of three mules is to transport up the plane seven empty wagons, weighing about 1450 pounds each, or making an aggregate of  $4\frac{1}{2}$  tons, each set of mules making  $2\frac{1}{2}$  trips per day. Two very strong horses he thought would be equal to the same task which would give  $2\frac{1}{2}$  tons for the performance of each horse. This is less than the useful effect of an average horse given in case 10th of the preceding table in which the plane would be somewhat steeper. The difference may be ascribed to the unequal distribution of the rise of the plane, and some other disadvantages, constructed as the Mauch Chunk rail way was for a trade altogether descending, motives of economy might have recommended this large declivity. In a rail way however, intended for a promiscuous commerce, enough has been said to show that such a location would promise and perform but little.

Under these views, it has been deemed important to conduct the examinations with a view to rail roads, in such a manner as to ascertain with certainty,

1st. The least possible elevation necessarily to be overcome between the points specified in instructions as points of termination.

2d. Where horse power alone could be employed. The least ascent per mile necessarily to be overcome by graduation between the Susquehanna and the dividing ground, that is to say, in the direction of greatest transportation.

The survey first to be attended to, was "that from some point on the Schuylkill canal to a point or points on the Susquehanna river, between Cattawissa and Sunbury, with a view of connexion of these points by a rail-road.

The difficulties in the way of this connexion arise from the depth and directions of the valleys of the Mahanoy and Little Mahanoy. Heading with the most easterly branch of the Schuylkill, the first of these streams pursues a general course of  $S\ 11^{\circ}\ W$ , and in consequence crosses a tolerably direct line from the head of the Schuylkill navigation to a point within the range admitted by the law, nearly at right angles. The Little Mahanoy has a shorter course, but the same direction, and at their junction these streams present a gulf 700 feet lower than the most depressed point of the Broad mountain. Formidable as is the obstacle thus presented in the way of a rail-road, it nevertheless appeared that this was the most favorable point for crossing the Mahanoy valley. A line crossing lower would of course have to pass over a point still more depressed, and one crossing higher must necessarily traverse two valleys instead of one, and an intervening ridge, unless traced around the sources of the lesser stream. It was discovered also on a survey and level of the Broad mountain, that its most depressed points were in the neighborhood of the forks of the stream, and the same fact was so evident on a view of the Mahanoy mountain, or the ridge dividing the tributaries of the stream, and those of Roaring creek and Shamokin, that it was deemed unnecessary to establish the precise difference with instruments.

Lines accordingly were traced from dam No. 1, of the Schuylkill navigation, across each of the most depressed points of the Broad mountain, to the forks of the Mahanoy. The first of these lines passes through the borough of Pottsville, ascends the valley of Norwegian creek to station No. 54, three miles and seventy-three and a half chains from our point of commencement, and there rises by an inclined plane 108 feet of perpendicular elevation to a depressed point in the ridge between Norwegian creek and the west branch of Schuylkill. From this point the line rises eight feet per mile to the foot of the Broad mountain, which is ascended by a series of inclined planes and graduated road-way to the summit. At this point we are elevated 950 feet above our point of commencement, and 750 feet above the forks of Mahanoy. From the summit to the forks the descent is effected down the valley of

Rattling run, in the same manner as the ascent of the Broad mountain, by inclined planes and short intervening stages of graduated road-way.

The second line to the forks of Mahanoy diverges from the one above described at station No. 18, immediately beyond the borough of Pottsville. This line might perhaps have been most advantageously commenced, near the furnace of Mr Pott, but it was not deemed essential in a preliminary trace to fix with precision its point of commencement. Passing up the east branch of Norwegian creek to station No. 8, thirty rods below the North American company's coal mine, it here rises by an inclined plane 110 feet to the level of a depressed point in the dividing ridge between this branch of Norwegian and mill creek. Afterwards passing up the valley of the last named stream, it attains the most depressed point of the broad mountain, at an elevation of nine hundred feet above our base, near James Stephens', in a distance of six miles and thirty-five chains farther. The whole distance being overcome by four inclined planes, affording an aggregate lift of 705 feet, and something less than six miles of graduated rail-way, rising from ten to twenty feet per mile. From letter C, or our summit at this point, the line is traced along the northern slope of the Broad mountain to a bridge 15 feet high at the forks of the Mahanoy, descending by inclined planes 485 feet, and 200 feet more by a graduation of 30 feet per mile.

From dam No. 1 to the forks of Mahanoy, the whole distance by the 1st, or westerly line, is 12 miles and 77½ chains; by the 2d, or easterly line, the distance is 16 miles and 42 chains. The difference in distance 3 miles 44½ chains, is counterbalanced by important advantages in the easterly line. This last line can be more advantageously graded, and its summit is fifty feet more depressed than that of the first or westerly line, and more depressed than any other part of the Broad mountain between the Little Schuylkill river and the head of Mahantango creek. A more material recommendation of this line is the extensive accommodation it will afford to an abundant coal district. The veins of coal which are broken by the Mill creek, and which would be generally accommodated by it, are represented as the most valuable in the neighborhood of Mount Carbon, and the point at which this line crosses the Broad mountain, is believed to be the only one by which the valuable bodies of coal between the head of the Mahanoy and its tributary the Shenado, could be commanded.

From the forks of Mahonoy, the only feasible route to the Susquehannah, would be in a great degree by the valley of the Shamokin. Rising by three inclined planes, to the most depressed ground between the Mahonoy and the Shamokin, at an elevation of 460 feet above the forks of Mahonoy, the line was afterwards carried along the valley of this stream, 17 miles and 74½ chains to No. 628, falling in this distance by three inclined planes 290 feet, and 395 feet by a graduation varying according to localities between 10 and 30 feet per mile. From this station (near the Shamokin meeting-house) two lines were traced to the Susquehan-

na. The first, five miles and nine chains long, ascends the Shamokin ridge by two inclined planes to the proposed summit, near the school-house, elevated 287 feet above No. 628, and thence descends by a continued inclined plane, to the river at John Boyd's Mill. The 2d line 10 miles and 62 chains long, passes along the Shamokin valley on the north side of the stream to Sunbury, falling in the whole distance 112 feet or between ten and eleven feet per mile. It was deemed proper to carry the 1st. line down the Susquehanna, as far as the Danville bridge, in order to ascertain what facilities or difficulties would present themselves in the way of a connexion with this town.

Extensive parallel surveys and examinations, were made at different points, in determining on the trace above described. These resulted in the conviction, that no other lines crossing the Mahonoy valley were worthy of consideration, besides those a sketch of which has been briefly given above. The results arrived at were, however, far from satisfactory, and it was resolved to trace a line around the sources of the Lesser Mahonoy and Mahonoy creeks, to the head of the Cattawissa, and thence down this stream, to ascertain how far such a line might avoid the objections in those traced.

The experimental lines which were accordingly traced, resulted in the certainty, that from summit C, before mentioned as the most depressed point of the Broad Mountain, a railway is practicable along the Northern slope of that mountain, rising from 10 to 20 feet per mile to the head of the Mahonoy creek, and the dividing ground between this stream and the little Schuylkill; from this point a railway would be carried perfectly level to the most depressed point in the dividing ground, between the Little Schuylkill and the south branch of Cattawissa. Here it must descend 600 feet by inclined planes in something less than four miles, after which it would be carried on a descent, commencing at 27½ feet per mile and gradually diminishing to 13 feet per mile at the end of nineteen miles farther, thence to the town of Cattawissa, a railway might have a nearly uniform descent of 13 feet per mile.

### SUMMARY OF PRECEDING LINES.

The whole length of a line commencing at dam No. 1, of the Schuylkill navigation, crossing the Broad mountain at the head of Rattling run, the Mahonoy at the forks, and ending at Sunbury, is 46 miles 25½ chains.

That of a line crossing the Broad mountain at summit C. and passing thence along the northern slope of the same to the forks of Mahonoy, and thence as preceding line to Sunbury, is 49 miles 70 chains.

That of last described line terminating at Catawissa, is 58 miles 13 chains.

It remains to compare this last line with the most advantageous trace which would cross at the forks of the Mahanoy. This is believed to be decidedly that crossing the Broad mountain at summit

C. of course so far corresponding with the line to Catawissa. It will be useless then in a comparative view to go further back than this point.

1st. As to elevation to be overcome. This between letter C. and the summit of the Catawissa line, is 151.49 feet. Between letter C. and the culminating point beyond which a line falls to Sunbury, is 445.7 feet; making a difference to trains of wagons going to the Susquehanna of 294.21 in favour of the Catawissa route. To produce going from the Susquehanna to the Schuylkill, this difference would be increased, by the difference in elevation between the surface of the North branch canal, opposite Catawissa, and that of the pool at Sunbury, or by about 36 feet.

2nd. As to graduation. The Catawissa rout in being adapted to locomotive engines, appears to present itself on very favourable ground. But for a rail-road which would be a common highway and on which horse power would be employed its advantages in this respect would not counterbalance its increased length.

The merits of a line terminating at or near Danville, have been left out in the preceding comparison, such a line would not be as advisable for a public highway as the one terminating at Sunbury, in consequence of the amount of the stationary power which would in this case be required on each side of the Shamokin hill. But were a line of rail-way executed to Sunbury it might be advisable to construct a single rail-way to the North branch of the Susquehanna river at, or near Danville, on which transportation should be effected by individuals or a company. The business of the road might in this case be so arranged, as that trains of wagons should be in readiness to leave the Susquehanna at the time that returning trains would reach the foot of the Shamokin hill. The horses might be there unhitched, employed to draw up to the school-house summit in two loads, wagons going to the Schuylkill, and these last in descending into the Shamokin valley be made to lift up returning trains. The horses would then proceed with the trains going to the Schuylkill whilst those returning to the Susquehanna would run down to the river by their own gravity on a continued inclined plane. The saving in distance by this branch to so much of the trade of the North branch canal, as might be arrested by the rail-way where it first touched the river, would be about 18 miles.

It remains to consider the Catawissa valley in its most interesting aspect, not only as a line of communication with the head of the Schuylkill navigation, but as presenting in connection with the little Schuylkill the most direct feasible route from the North Branch of Susquehanna to Philadelphia, and by way of Quakake valley a very direct route to the Lehigh. Examinations were made of these branches only so far as to settle the general question of practicability. It having been intended to return to them, in the event of completing in time other surveys which were deemed more important. It would require a more complete examination than was made and statistical facts of which I am not in possession to determine how far a rail-way along the Catawissa valley with

branches as suggested from its summit, would be justified by the business it would command. That such a rail-way would command a very considerable trade, and a more extensive and varied business than any other line of rail-way between the North branch of the Susquehanna and the Delaware there is no doubt.

By its branches it would accommodate much of the anthracite district on the Lehigh, the whole of that on the little Schuylkill, the Mill creek and the Mahanoy. By the same branches supplies of provisions would be most conveniently and cheaply furnished from the fertile country on the Susquehanna to the mining districts on the waters of the Lehigh and Schuylkill. Produce which it would be an object to transport quickly to Philadelphia, and the greater part of the returning merchandise, would probably be conveyed by the Catawissa valley, and in the event of a temporary interruption in the navigation of the Susquehanna division of Pennsylvania canal, this line of rail-way by offering in such a contingency both the Lehigh and Schuylkill canals, would present a most valuable resource to the trade of the North and West branches.

It should be observed before leaving this subject, that the execution of a line of rail-road along the Catawissa creek, need not involve the execution of more than one of its branches in the first instance, and that this rail-road might be for the greater part of its length a single rail-road. If transportation was effected by locomotive engines, this would be equal to any business which could for some time reasonably be anticipated, and by placing transportation, as in this case it should be placed, in the hands of a company, it would be easy so to regulate the business of the road, as to avoid the meeting of trains of wagons except at fixed crossing places.

From the Catawissa and little Schuylkill summit, a line of levels was carried, and a critical examination made along the whole of the dividing ground between the North branch of Susquehanna, and the Lehigh, as far north as the Wilkesbarre and Easton turnpike; and more minute examinations made in relation to two lines of rail-way which have been proposed, the one by way of Black creek and little Schuylkill, and the other between Wilkesbarre and the Lehigh. Each of the proposed lines presents very great difficulties. An elevation of 1829 feet above tide in the one case, and 1834 feet in the other, must be overcome. Neither of the routes admits of an advantageous profile, and each would be very circuitous in proportion to the length of a direct line between its points of termination.

The next in order of field duties performed, was an examination of a route by the way of the Nescopeck and Lehigh with a view both to a canal and rail way.

A full examination of the whole dividing country between the North branch of the Susquehanna and the tributaries of the Delaware, commencing at the head of the Schuylkill, and continued as far north as the sources of the Lehigh, is conclusive of what had



been before believed, that no route presents facilities for the construction of a canal deserving of consideration with the exception of the valley of the Nescopeck. One branch of this stream heads within two miles of the Lehigh, at the point where the Lehigh affords a sufficient volume of water at all seasons for a lock and dam navigation. Our examinations were commenced at the most depressed point between the two streams, and directed in the first instance to ascertaining what supply of water could be commanded on a summit level.

Assuming for our base a level 14 feet lower, a line was traced up the valley of Wright's creek until the surface water of this stream was cut by it; thence across the gently sloping country which separates Wright's creek and Pine run, and crossing this stream was traced around the bluffs of the Lehigh, and up the valley of Bear creek to a point at which this last stream can be conveniently taken in. These streams were gauged above the points where they were intersected, at a time when they were said to be very low, and at points which admitted of a satisfactory measurement of their volume. They were found to furnish.

Wrights creek, per minute		407.5 cubic feet.
Pine run, per do		201.3
Bear creek per do		1425.3
		<hr/>

On an aggregate supply of

2084.1

This handsome supply of water with the certainty that it could be materially increased by the construction of reservoirs on Bear creek, (for which very favourable situations present themselves,) and that the whole volume of the Lehigh might be commanded by a continuation of the feeder line, placed the subject of an adequate supply of water at rest, and returning to BM. SI. our point of beginning, the survey of a line of canal was commenced.

A line was traced from BM. SI. along the valley of Wrights creek to the Lehigh, and from the same point along the valley of the Nescopeck to a point of junction with the North branch canal 96 feet below the bridge at Berwick. The distance from SI. to the Lehigh is 2.23 miles and descent 209.217 feet. From SI. to the North branch canal, the distance is 35.05 miles and descent 8292.84 feet, making the whole length of canal traced 37.28 miles, and the whole fall to be overcome both ways 1038.501 feet.

The survey made was altogether topographical, without any assumption of base lines, which with the limited knowledge previously possessed of the country, must generally have varied from that which would prove most advisable, and have been unnecessarily a review of the field notes, topographical sketches and slopes of ground, presents the following as the most advisable profile of a canal.

The summit should be reduced 70 feet by means of a tunnel of 175 poles in length, and a deep cut for a short distance at each end. The Lehigh may in this case be commanded at the mouth of Bear creek by a dam 12 feet high, and a feeder not exceeding 5.12

miles in length. The fall still to be overcome to the Lehigh is 139.217 feet, and the descent to the North branch canal 759.284 feet. The descent to the Lehigh would be effected by locks of ten feet lift with intervening basins. At one point however (the falls of Wrights creek) four ten foot locks must be combined, (of course double locks resorted to) in consequence of the rapid fall in the ground at this place, which would render it very difficult to construct basins. On the Susquehanna side of the summit level, contiguous locks and basins (in one instance as many as five) may generally be obtained as far as the mouth of little Nescopeck, without any material accession of expense. Beyond this point it will be necessary often to construct a canal in the bed of the Nescopeck, and economy will recommend the lowest level which regard to the safety of the canal may admit; of course the fall in this part of the canal must generally be effected by detached locks.

The connexion with the north branch canal, will be made by an aqueduct 1230 feet long, and elevated 20 feet above the water of the river. The difficulties in the construction of a canal arise,

1st. From rock excavation. The feeder line traced by us would not certainly be the one adopted in the event of a very material reduction of the summit. But a great deal of rock must necessarily be encountered in a feeder line, whatever may be its profile. The tunnel must be perforated through red sand stone, and a large proportion of the deep cutting at each end, will consist of the same; the lock-pits must generally be excavated in the same kind of rock, and in excavating the intervening basins it will often be found.

Between the western termination of the summit level and the point at which the canal trace crosses the Berwick turnpike, a canal might be formed along the rocky declivities which frequently present themselves, by embankment. It will be judicious however, in such cases to encounter much rock in preference to forming the entirely or in a very great degree on steep slopes.

2d. In long stretches of embankment and slope wall. Between the summit level and Berwick Turnpike the sections of a canal would be often combined excavation and embankment; but below this point, the concave shores of the Nescopeck creek present every where either perpendicular cliffs, or a naked surface of rock. As far as the mouth of Black creek, a canal would be formed most conveniently at such points, by excavating a new channel for the Nescopeck in the opposite flats, occupying its bed, and protecting this *natural* canal by an embankment and slope wall, of sufficient height to guard against the freshes of the creek. Below the mouth of Black creek, the increased width of the Nescopeck will render it necessary to form the canal under similar circumstances, by embanking in the channel of the creek. The earth for this purpose will be generally obtained from the opposite flats, and though they in a great degree consist of sand, with a very slight mixture of loam, will be sufficient for forming a canal, provided a due degree of *weight* be given to an embankment. This would be most advantageously furnished by constructing the outside of the embank-

ment of loose rock presenting a larger, or smaller cross section in proportion to the height of the bank. On this loose rock a slope wall would rest, and the inside of the bank would be secured against abrasion by a pavement.

*3dly.* In the connexion with the North branch canal. The aqueduct contemplated for this purpose, would consist of arches of timber supporting a wooden trunk, and resting on stone piers. The piers of such a structure should be erected of large and well jointed stone, secured by carefully breaking joints, and occasional cramps. The wooden superstructure must necessarily be framed in the strongest manner, and will involve a considerable expense in iron bands and bolts.

A dam and tow-bridge by which it has been proposed to form this connexion, would not be advisable for the following reasons.

It would require a dam 17 feet high, one which would raise the surface of the river  $14\frac{1}{2}$  feet at the Berwick bridge, to place it on a level with the lower level of the canal at this place. A dam lower than this would operate as a drain on the North branch canal, in proportion to what it wanted of this height, and to the activity of trade on the Nescopec line, and would be therefore inadvisable.

How far such a dam would effect the line of canal, or the river flats above Berwick, I am possessed of no facts to determine. It would certainly present the following disadvantages.

The Berwick bridge would be endangered from accumulations of drift wood and ice against its arches; the entrance to the North branch canal would require an expensive guard lock and protection walls, spacious locks must be placed in the dam to pass arks and rafts. The *expense* of lockage on the Nescopec canal be increased by a lift of 8 feet, and the *amount* of lockage to boats passing from the Nescopec *up* the North branch canal, or *descending* the North branch and entering the Nescopec canal be augmented 16 feet.

It remains to mention the most formidable obstacle in the way of the canal. This is unquestionably the lockage. In addition to the rise in the Nescopec valley, and the fall from the summit level to the Lehigh, that of this last stream between Wrights creek and Mauch Chunk (597 feet) is to be added in estimating the cost and comparative value of this route.

The field notes and topographical sketches taken with a view to a canal furnish, also, the facilities and difficulties of the Nescopeck and Lehigh route, with a view to a rail-road. In a more depressed summit than that of any other route, it certainly presents one important advantage, which is counterbalanced.

*1st*, by the difficulties arising from frequent cliffs of rock on the Lehigh, and the lower part of the Nescopeck. This circumstance combined with the irregular fall in the latter stream, would render the grading of a rail-road along a considerable portion of the route a matter of much difficulty.

*2nd*, by the indirectness of the route, whether in relation to the North, or west branch of the Susquehanna.

It will be observed on reference to the map of Pennsylvania, that after having arrived by a railway at the mouth of Wright's creek, we are within 13 miles of the borough of Wilkesbarre. Produce then descending the Susquehanna river, or North branch canal must travel to Berwick by the canal or river, and 37  $\frac{3}{8}$  miles additional by a railway to attain a point which it could reach in about 15 miles, by a well graded turnpike road. An ordinary turnpike would under such circumstances compete very advantageously with a railway, and at any rate the advantages of the latter improvement would not be sufficiently decided to justify its being made.

In relation to the West Branch trade, a line by way of the Nescopeck valley would be about 18 miles longer than one by way of Catawissa creek.

These remarks apply also to the proposed Nescopeck and Lehigh canal, with the difference only in favor of the canal as a superior improvement, and that it avoids a change in the mode of conveyance.

The field labors of the season were concluded by examinations, with a view to a connexion between Broadhead's creek and the Lackawanna. It has been thought that such a connexion might be effected either by a canal or railway, by two routes. The one passing up the valley of Roaring Brook, crossing the Lehigh and Tobyhanna rivers, near their source, and descending abruptly from the table land in which these streams rise to the valley of Broadhead's creek. The second leaving the valley of Roaring brook at a point where it approaches the west branch of Waullentaupack, crossing the dividing ridge between the two streams, and afterwards retaining a level until a descent can be effected into the Broadhead's creek valley.

The result of the examination made with regard to the first route was unfavorable. A great elevation (1900 feet above tide) must be overcome, and much difficulty encountered in crossing the Lehigh and Tobyhanna rivers. A considerable fall of snow which occurred when the levels had progressed to within a short distance of Mr. H. W. Drinker's, prevented any examinations being made with instruments, with a view to the second route. A reconnaissance of a part of the ground necessarily to be traversed, made in company with Col. Porter of Easton, Judge Coolbaugh and Mr. Drinker, commissioners under the act incorporating the Delaware and Susquehanna canal and rail road company, was not as satisfactory as had been hoped. It is believed, however, by the commissioners, and it is thought very probable, that the elevation to be overcome by this route would not be within 300 feet of that to be overcome by a route crossing at the head of the Lehigh. Other opinions of these gentlemen are explained in a letter to the undersigned, which is herewith annexed.

All which is respectfully submitted.

MORCURE ROBINSON,  
Civil Engineer.

Philadelphia, Dec. 4, 1828.

## No. 6.

*To the board of Canal Commissioners of the state of Pennsylvania.*

GENTLEMEN,

Having completed the examinations of the Allegheny, Monongahela and Ohio rivers in conformity with instructions received from Joseph M'Ilvain, Esq. I have the honour to submit the following reports on each of the several routes, according to the order in which they were named in these instructions:

1st. THE ALLEGHENY ROUTE.

A detailed copy of the instructions which guided my examinations in the route, are as follows:

"To make the necessary examinations, surveys and levels along the valley of the Allegheny river, from the mouth of French creek to the mouth of the Kiskeminetas, and to report upon the practicability and estimated cost of making a canal between the said points; also upon the practicability and estimated cost of improving the navigation of said river for steamboats, by dams and locks, between the said points. And also upon the practicability and estimated cost of improving, by dams and locks, the navigation of said river for common canal boats, between said points. And also, upon the practicability and estimated cost of making a navigable communication between the said points, partly by canal and partly by dams and locks."

In compliance with these instructions, I shall proceed to notice 1st, the practicability and estimated cost of making a canal between said points.

In traversing the section of the Allegheny river, now in question, the eye of the engineer is presented with a greater extent of more serious obstacles to the construction of a canal, than are usual along rivers of a similar size. High, precipitous hills project on either side, to the waters edge, for a greater part of the whole distance, affording to the progress of a canal, an almost continued succession of high embankments. These are frequently to be made in deep water, but more commonly at an irregular surface, composed of detached masses of rock. Occasionally flats or bottom lands afford some relief to the roughness of the route, but these are so trifling in extent, in comparison with the bluffs, that the whole line is rendered remarkably expensive, and unusually unfavourable.

As the board have already been furnished with a minute, and I may add correct description of the character of this valley for canalling, in the report of Judge Geddes of 1826, I deem it unnecessary to remark further on this subject, and shall proceed to state that the present examinations were made with a view to a canal on the east side of the river. Having had no particular instructions with reference to this subject, I selected this side on the presump-

tion, that as the examinations of 1826 were made on the west side, it would be more satisfactory to the board, as well as to others interested, if the present one was made on the east side.

The only apparent obstacles of importance, which present themselves to the construction of a canal on this side, that do not appear to exist to an equal extent on the opposite, are the crossings of the Clarion, Redbank and Mahoning. These are all streams of considerable size and importance, and would be valuable as feeders; but that the inconsiderable quantity of fall, and the excessive roughness of their banks in the vicinity of their mouths, precludes the possibility of their introduction into the level of a canal, without incurring serious expense.

The estimated line of canal commences about 15 chains below the mouth of French creek, and its level was assumed at 20 feet above the river surface. This was done with a view to its crossing the Allegheny on an aqueduct, and its extension up the valley of French creek, by which means it would receive its first supply of water from that stream. All further supplies it is proposed to take from the river by three dams, the location of which are as follows: The 1st at Patterson's falls on the thirtieth mile, the 2d at Early's Ripple, sixty-third mile; and the 3d at Fort Run ripple, three miles below Kittanning, being at the end of the eighty-first mile. The top line of this dam is planned on a level with the top water line with the Kiskeminetas canal. The localities of each of these dams are favourable as accumulating sufficient fall to place the canal almost immediately out of reach of freshets. Objections may be raised to these dams as injuring the natural navigation of the river. This can only be remedied by the construction of river locks, or the adoption of the plan suggested by Judge Geddes, viz: the running a wall parallel to the shore, for the purpose of creating power, and the elevation of the water into the canal by machinery.

Considering this an uncertain method of supplying a canal, constructed along a rocky valley like the Allegheny, where a very considerable quantity of water must necessarily be lost by filtration, I have estimated the line with a view to its supply by dams as above proposed.

By the present examinations, the distance from the mouth of French creek to the Kiskeminetas is 93½ miles, and the fall is 223 feet. That this result differs materially from the one of 1826, will readily be perceived; and I am aware that it will produce much excitement in the minds of the board, as well as of others interested; an excitement, however, which I cannot otherwise relieve, than by assuring them, that great care was preserved in taking our measurements, both of distance and fall. And also, that the United States' engineers, who were engaged on the Allegheny at the same time with ourselves, and who completed their examinations of this section of the river, on the same day, produced very nearly the same result that we did, the difference being less than one foot in fall, and one-fourth of a mile in distance. This difference may

easily have originated in a selection of the points of starting and terminating. Having made myself acquainted with this fact, I have no hesitation in presenting to the board both the distance and fall as stated above with full confidence in their accuracy.

The locks on the line have been dropped at such intervals as to preserve the surface of the canal above the freshets.

The estimates have been made for a canal 28 feet wide on the bottom, and the towing path 12 feet wide at the top. The river embankments to be supported by a wall of stone. Aqueducts with stone abutments and wooden superstructures.

The only deviation proposed on the line, from the common form of the canal, is immediately below the mouth of Crooked creek, (see map No. 18.) This stream enters into a narrow channel of the Allegheny, on the east side of an island, about three-fourths of a mile long, and a few rods below its head. It is here proposed to embank from the south end of Crooked creek aqueduct to the island, and continue the towing path along on the side of it to the lower end, from thence the direction is favourable for its return to the main shore.

By enclosing the channel in the manner as above described, the junction of Crooked creek with the river will be formed above the island. The great width of the west channel at this place, renders this plan perfectly feasible, and besides the advantages of furnishing a fine basin or reservoir, it will save in cost \$ 6,245.

From the foot of lock No. 28 to the end of mile 81st, the canal is continued on a level to its intersection with the Kiskeminetas canal, by which means, the feeder taken from the dam at Fort run, will be introduced into that canal. Notwithstanding the ground passed over on this section of the line is more favourable than any other for a canal, yet, owing to the fall in the river, the great elevation necessary to attain the level of the Kiskeminetas canal, renders the construction of such parts of the line as require embankment, very expensive.

The fall from the mouth of French creek to the level of the Kiskeminetas canal, is 155 feet. To this add 20 feet for the assumed elevation of the aqueduct at French creek, and the fall on the present line will be 205 feet.

The following summary will exhibit the cost of each mile, including excavation of earth and rock, embankment, wall, grubbing, aqueducts, bridges, culverts, fencing, &c. calculated at prices varying according to the nature of the work and the facilities offered for doing it.

## ESTIMATE.

<i>Miles.</i>	<i>Dollars. Cts.</i>	<i>Miles.</i>	<i>Dollars. Cts.</i>
No. 1	20816 17	7	19910 2
2	685 10	8	45820 63
3	25353 14	9	34106 11
4	30501 50	10	15480 6
5	6464 32	11	7908 15
6	15032 45	12	19240

## CANAL REPORT.

<i>Miles.</i>	<i>Dollars. Cts.</i>	<i>Miles.</i>	<i>Dollars. Cts.</i>
No. 13	20320 25	No. 54	22250 4
14	13016 70	55	15776 29
15	34516 20	56	3410 45
16	12180 5	57	17060 31
17	16850 31	58	16116 10
18	13750 65	59	33100 25
19	37910 50	60	34150 6
20	16320 25	61	17024 15
21	10240 10	62	26800 31
22	6651 12	63	3521 50
23	21010 44	64	17400 62
24	7192 15	65	27910 12
25	13206 25	66	12801
26	24800 31	67	26010 37
27	3601 11	68	63260 50
28	10650 62	69	31720 15
29	23560 20	70	3645 6
30	12262 15	71	4250 44
31	7924 10	72	21,310 12
32	14588 31	73	5,850 62
33	28204 50	74	35,632 09
34	6312 44	75	50,650 15
35	5490	76	40,320 25
36	18250 62	77	21,150 10
37	10780 6	78	5,875 18
38	8742 12	79	4,760 44
39	18530 25	80	30,745 12
40	49501 37	81	5,486
41	25250 10	82	3,850 15
42	10368 81	83	5,756 25
43	12150 15	84	12,382 06
44	27945 10	85	36,760 62
45	10410 60	86	11,551 14
46	14030 25	87	30,680 44
47	3930 6	88	6,225
48	30510 37	89	32,450 12
49	55220 10	90	13,880 50
50	26430 61	91	5,571 31
51	8562 15	92	43,710 06
52	3971 20	93	17,080 15
53	24400 37		

Add 205 feet lockage at \$500 per foot  
Cost of 3 feeders

1,735,346 06  
102,500  
71,735

Add 10 per cent

1,909,581 06  
190,958 10

Total cost

2,100,539 16



## ALLEGHENY SLACK WATER.

I now proceed to notice the practicability and estimated cost of improving the river by locks and dams for steamboats, between the mouth of French creek and Kiskeminetas.

It is to this species of improvement, that this river is peculiarly adapted. Its banks are uniformly high, and the fall is generally accumulated at the ripples, between which the pools are still and deep.

To locate dams therefore, at such places as would overcome the fall at the ripples without the necessity of excavating the river bed, has been the object of the present examinations. With this view, high dams have been located, as being the only effectual plan to make the improvement complete.

Owing to the extensive gravel bars, formed in the vicinity of many of the ripples, the adoption of low dams, and consequent low levels, would render extensive excavations below the outlet locks, in order to attain a sufficient depth of water, an item of serious expense, and in addition to the expense, the progress of steamboats confined to these narrow channels, must at all times be hazardous. The advantages attending the construction of high dams as proposed, will be to avoid the above mentioned inconveniences. To create a saving of ten dams, and by extending the length of the pools, materially to facilitate the passage of steamboats.

I am aware that a strong prejudice exists in the minds of many interested in this improvement against the adoption of high dams, for which two reasons are assigned:

1st. That they will tend materially to injure the rafting interest which is of great importance to the river.

2d. That a corresponding rise in the spring freshets will be produced equal to the full height of the dams, thereby doing much injury to private property.

With regard to the first objection, I have no hesitation in declaring my belief, that after the dams are completed, the water will never rise sufficiently high in freshets to admit lumber to pass over them in safety.

The locks however, have been planned sufficiently large to allow rafts to pass through them.

As a great proportion of the lumber comes down the tributaries of the Allegheny, the rapidity of their course will undoubtedly be checked on arriving at the pools formed by the dams, and their progress down the navigation be extremely slow. How far this inconvenience will compare with the advantages to be derived from an improvement of the river, is a question which I shall pass over without comment, as being a subject for discussion to be decided by the wisdom of the legislature, and proceed to the second objection, by observing that the impression received in relation to an increased rise in the water in freshes, caused by the dams, is altogether erroneous, and generally originates with those who have

paid little or no attention to the subject. So far from an increase in the ordinary rise, it is on the other hand considerably diminished. On the Schuylkill river, where this species of improvement has been adopted to a considerable extent, and where the height of dams vary from 7 to 27 feet, I have ascertained both from observation and enquiry, that no complaints are heard respecting this imaginary inconvenience. But the better to substantiate my own opinion with regard to this subject, I would with pleasure refer the board to the instance of the Conestoga navigation.

Previous to the improvement of that stream, high water marks were seen along its banks, from ten to twelve feet above the surface of common low water. This was said by all to be the usual height of the freshes, and from this fact the possibility of constructing permanent dams on the stream was doubted by many. The dams, however were built, varying in height from 10 to 14 feet above the bed of the stream, and in no instance since their construction, has a rise of the freshet on the pools exceeded three feet, whereas on the unimproved parts of the river, the same complaints are heard of its rise as formerly.

This extraordinary difference is easily accounted for, by its increased surface on the pools and its unobstructed discharge over the dams.

Mills are in operation at several of the dams, and the sheeting for the water wheels is placed but four inches above the surface of the lower level. These have been so little affected by freshes, that their progress has not been interrupted for a single day.

Previous to the present improvement, the mills were supplied with water by low dams, the sheeting commonly from one to two feet higher than the surface below the mills, and while in this situation the owners have assured me, that in almost every freshet the operations of the mills were necessarily suspended. Another important fact relating to this navigation, is that the current on the pools during a high freshet, in time of breaking up of the ice, was found not to exceed one and one-fourth miles per hour.

That interesting improvement is now completed, and although cheap and simple in its construction, yet no fears are entertained of its permanency. Valuable water power is created at all the dams, and every species of craft that floats upon the Susquehanna, has now at all times, easy and safe access to the city of Lancaster. These, together with the trade incidental to a rich and populous country, will doubtless render it a profitable investment to its enterprising proprietors.

The above remarks have been elicited in the hope of dispelling the doubts and prejudices that exist with regard to the adoption of high dams, and all fears as to any additional rise of the water by freshes, equal to the height of the dams.

The construction of dams along the Allegheny, will necessarily be attended with considerable hazard and consequent expense. This will be chiefly owing to the depth and velocity of the current in the channels, where it was found necessary to locate the dams.

and to the sudden rises of the river, it being easily affected by showers. An evidence of this fact was afforded us while engaged on the river, by a rise of four feet in a single night, and this the result of a few passing showers the day previous. Such an occurrence during the progress of the work, would, unless due precautions were taken, be productive of serious consequences. These are difficulties however which can be overcome, so far as human foresight and power is applicable, by the selection of prudent and energetic men as contractors, who by proceeding cautiously, and at the same time expeditiously would, unless in some extraordinary case, complete the whole work safely and permanently.

A remarkable peculiarity in the character of this river is, that notwithstanding its banks are lined with rocks for a great proportion of its length, yet in not a single instance can a rock bottom be obtained for the foundation of a dam, and in but very few instances for the locks. The dams will in all cases stand upon a bed of coarse gravel, and the locks commonly upon the same material.

As the instructions given me in reference to the examinations and estimates for slackwater along this valley, imply three distinct improvements, the following descriptions and the succeeding estimate will represent the plan which is considered best adapted to the river, under existing circumstances, and will more properly embrace the terms, as stated in those instructions, an improvement partly by canal and partly by locks and dams.

From French creek to Fort Run ripple, three miles below Kittinging, it is proposed to construct eighteen dams and twenty-eight locks. Dam No. 1, to be located at Beck's ripple two and a half miles below French creek, and its top of sufficient elevation to flow three feet of water on to the present surface of that stream at its mouth. This was necessary, in order to give four feet depth of water at that place; and by it a safe and convenient harbour is formed, which will materially facilitate an extension of the improvement, should it hereafter become necessary.

Below this place the dams have all been located at such points as the banks, bed of the river, and desired fall, rendered favourable. Wherever the height of the dams require two locks, pounds have been planned between them. The length of these pounds vary from three to fifteen chains, according to the difficulties to be encountered in obtaining a favourable position for the outlet lock. In two instances canals are proposed, viz: (One at Patterson's falls, thirty chains long; and the other at Early's ripple, forty chains long. Each of these canals are calculated to save a dam, as there is a considerable fall in the river at their respective localities;—both the pounds and canals to be sixty feet wide.

At dam No. 18. (marked No. 19 on the map, and being the same proposed as a feeder dam for the canal line) it is proposed that the slackwater improvement for steamboats should terminate, and a connection be formed with the Kiskeminetias line, by a canal.

Two important advantages would result from this plan:

First, A saving of lockage would be effected, as follows: Fall from dam No. 18 to the mouth of Kiskeminetas, 41 feet; lockage from the Kiskeminetas canal down into the pool, 30 feet; total, 71 feet.

Second, The Allegheny would be introduced as a permanent feeder into the canal south of the aqueduct, as suggested in my remark. per canal report.

The foot of the slackwater improvement and consequent commencement of the canal was at first contemplated at Kittanning, but the expense of constructing the canal past the steep slip hill below that town was considered a sufficient inducement for the alteration, as by the present location the canal is not only placed out of reach of the floods immediately, but also on favourable ground.

The only mill now in operation on the line surveyed, is at Catfish falls. This mill by the present plan will be destroyed. And it is believed that it cannot be saved without enhancing the cost of the work beyond the value of the mill. The removal of a bar will also be necessary at these falls in order to afford 4 feet depth of water, but its situation is such that it can easily be removed.

The estimates have been made for crib dams, to be built of oak or pine, and to be filled with stone. A correct plan of the dam, together with the necessary descriptions will be seen by a reference to map No. 22, in the atlas.

The locks are estimated to be 120 by 26 feet in the chamber, and to be built of stone. These dimensions were assumed as being adapted to the size of the low-water steam boats now in use on the Ohio. It is calculated that these boats will carry 60 tons of freight, drawing 3 feet water, and travel with two canal boats in tow, each carrying forty tons, at the rate of 5 miles per hour, or average including lockage 4 miles per hour. With this view of the subject, locks of this size were deemed best adapted both to the economy and capacity of the improvement. The cost of the dams and locks have been estimated with particular reference to the difficulties which are to be encountered in their construction. The following table will show the number, height, length and location of each of the dams; the number and lift of each of the locks, their total fall from French creek; the length of the pools, the length and cost of each of the pounds, &c. height of dams calculated from bed of river. Cost including wing wall.

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Height of dams, calculated from bed of river.

Cost including wing-walls.

Dams,	Locks.	Lift of locks.	Total lockage, pounds.	Length of chains.	Localities of the dams and locks.	Length of the pools.	Height of Dams.	Length of dams	Cost of Dams.	Cost of pounds.
No.	Feet.	Feet.	Feet.	Feet.	Names.	m. & ch	Feet	Feet.	Dollars.	D llars.
No.1	1 & 2	6 1/2 each	13	3	Beck's ripple and island.	2.40	14	850	23,550	822
2	3	8	21		Six mile run ripple.	3.28	12	600	16,275	
3	4 & 5	6 each	33	3	Foot of Sandy islands.	2.65	18	650	17,550	812
4	6 & 7	6	45	9	Charley's oven ripple.	4.67	11	845	20,350	2,439
5	8 & 9	6 1/2	58	4 1/2	Ripple No. 18, 1/2 m. above Falling spring	5.07	14	695	19,465	1,221
6	10	8	66		Montgomery falls.	4.44	13	660	18,480	
7	11	8	74		Near Stooover's ferry.	2.36	12	690	16,250	
8	12 & 13	6 1/2 each	87	30	Patterson's falls.	3.60	13	858	22,882	3,240
9	14	8	95		Foot of Nicholson's eddy.	2.34	12	90	13,550	
10	15 & 16	8 each	107	8	Spruce run ripple.	3.50	12	855	15,036	2,192
11	17	8	113	10	Lawrenceburg ferry.	4.24	11	860	18,320	1,955
12	18 & 19	6 1/2 each	128	6	Rattlesnake ripple.	2.74	14	665	17,624	1,525
13	20 & 21	6	140	15	Armstrong's ripple.	6.46	14	725	20,132	2,450
14	22 & 23	6	152	3	Ripple No. 28, 2 ms. above Redbank.	7.21	13	730	18,990	812
15	24 & 25	6 1/2	165	40	Early's ripple.	4.21	14	875	23,846	6,950
16	26 & 27	6	177	5	Mahoning ripple.	6.16	13	760	18,760	1,150
17	28	8	185	3	Near mouth of Pine creek.	4.48	11	920	20,080	755
18	This dam is marked No. 19 on the map. Fort-run ripple.					7.61	18	800	25,625	
									346,035	25,625

Cost of the dams,

Cost of the dams,

Cost of the dams,	\$346,825
Pounds and canals,	25,63
Removal of rocks and gravel bars below the locks,	5,275
Cost of 12½ miles of canal from Fort-run to Kiskeminitas,	219,697
Guard lock at head of canal,	2,050
185 feet of lockage at \$1,300 per foot lift,	240,00
	<hr/>
	839, 80
Add ten per cent.	83,918
	<hr/>
Total cost,	923,098

Having thus shown the cost of an improvement which, from its saving of dams and the advantages offered for its connection with the Kiskeminitas canal, seems at present best adapted to the river. It remains for me to exhibit the cost of an improvement for steam boats between said points by locks and dams without canals, and also an improvement for common canal boats by locks and dams.

By the first plan, the canal at Patterson's falls will be dispensed with, and a dam at the the head of Nicholson's eddy 765 feet long and 11 feet high will be substituted in its stead. Also a dam at Dickinson's falls 685 feet long and 12 feet high, in lieu of the canal at Early's ripple. By this last alteration the height of the dam at Mahoning will be lessened 2 feet.

Dam No. 18, near Kittanning (as marked on the map) 930 feet long and 13 feet high will be required. Dam No. 19 will be 12 feet high instead of 18, as represented in preceding table; and dams No. 20, 990 feet long and 12 feet high. No. 21, 858 feet long and 13 feet high. No. 22, 810 feet long 11 feet high; all of which are marked on the map, will be necessary to make the required navigation between said points.

Pounds between the locks are estimated in this plan as being necessary to any improvement of the river, unless by low dams.

The number, localities and cost of the dams for an entire steam boat navigation will stand as follows.

Dam No.	Localities.	Cost.
1	Beck's Ripple	\$23,550
2	Six mile run	16,225
3	Foot of sandy islands	17,550
4	Charley's Oven ripple	20,250
5	Ripple No. 18, ½ mile above the Falling spring	19,45
6	Montgomery's falls	18,480
7	Near Stover's ferry	16,250
8	Patterson's falls	22,882
	A dam at the head of Nicholson's eddy, (not marked on the map)	16,740
9	Foot of Nicholson's eddy	13,550
10	Spruce run ripple	15,056
11	Lawrenceberg ferry	18,320

Dam.	Localities.	Cost.
No. 12	Rattlesnake ripple	\$ 17,624
13	Armstrong's ripple	20,152
14	Ripple No. 38, 2 miles above Redbank	18,990
15	Early's ripple	25,846
	Dam at Dixon's falls, not numbered on map	15,645
16	Mahoning ripple	16,760
17	Pine creek ripple	20,080
18	Near Kittanning	21,740
19	Fort run ripple	17,815
20	Nicholson's falls	22,830
21	At island near Darrickman's run	21,953
22	Near aqueduct	19,760
		<hr/> 458,493

To connect this dam with the still water, below the mouth of Kiskeminetas, 15 chains of canal will be required.—Cost

	3,965
Add the cost of necessary pounds	14,233
223 feet of lockage at \$1,500 per foot	289,900
Excavation and removal of rocks below the locks	9,356
50 feet lockage from the Kiskeminetas canal into the pool	18,000
	<hr/> 793,949

Add 10 per centum

79,394

Total cost \$873,348

By an improvement for common canal boats, the locks will be confined to one side of the river, which will render the removal of gravel bars a subject of frequent recurrence.

The towing path will require a protection wall for the whole distance. The estimates have been made for a towing path inclusive of river excavation, and averaged per mile. The localities of the dams will be the same as in the preceding plan. The locks will be 90 by 15 feet in the chamber. The cost of these locks will be enhanced beyond the cost of locks on a canal line, by the great difference in the height of the walls and the difficulties attendant on preparing their foundations.

The construction of a towing path will necessarily be very expensive, from the vast amount of wall required, and the dangerous slip hills to be encountered.

## CANAL REPORT.

The cost of this improvement will stand as follows:

Estimate of 24 dams as preceding	\$ 458,495
Towing path and excavation at \$90.00 per mile	839,556
Lock pounds	14,388
223 feet of lockage at \$1000 per foot	223,000
Lockage from Kiskeminetas canal into pool	18,000
	<hr/>
	1,552,978
Add ten per cent.	155,297 80
	<hr/>
Total cost	\$ 1,708,275 80

By the preceding estimate it will be observed, that the entire improvement by lock and dams is the cheapest. This plan, however, is very objectionable, as all boats destined from the canal to French creek, must necessarily encounter 71 feet additional lockage, as heretofore mentioned; and besides this inconvenience, no water will be introduced into the canal from the Allegheny as a feeder.

EDW. F. GAY,  
*Engineer.*

## MONONGAHELA REPORT.

The duty assigned me in relation to the Monongahela river will be seen by the following instructions.

That examinations, levels and surveys, be made along the valley of the Monongahela, from the Virginia state line to Pittsburg, with a view of determining the most eligible mode of affecting a communication either by canal or slackwater navigation. And that in contemplation of a slackwater navigation, to report in addition to other proper and necessary matters, precise accounts of the number of dams and locks necessary to be erected, their respective dimensions and localities. The materials of which they should be constructed, and the plan, manner, and estimated expense of the same separately. And further that the plan shall be so arranged, if practicable, as to preserve from injury, the mill works and water power now in use on said river.

In compliance with the above instructions, my attention was necessarily first directed towards ascertaining the practicability of either, or both of the improvements implied by them. Accordingly I visited the river at several points to ascertain its general character, and from my own observations, together with the information derived from many gentlemen of respectability who resided along the river, I became satisfied, and during the examinations, confirmed in the opinion, that a canal cannot be made along this valley at a reasonable expense, and therefore that it is unnecessary to make any examinations with reference to its particular cost. The reasons which induced this conclusion, will be seen as follows.

The banks of this river are for nearly the whole distance examined, of a slippery nature. This characteristic is exhibited in the



face of the hills to a dangerous extent. As these elevated bluffs are washed by the river about one-third of the distance, the flats or bottom lands which are often extensive, vary in height, from twenty to fifty feet above the river surface, their average may be placed at about 35 feet, and although apparently even in their general surface, yet our levels show that a canal line entering upon them at an elevation of 30 feet above the river, would very often unavoidably encounter cutting twenty feet in depth, before arriving at their termination. This together with the necessity of passing the above mentioned treacherous bluffs, on levels sufficiently elevated to place the canal on the flats, and the difficulty of introducing feeders into such elevated levels, would render the construction of a canal an item of serious expense. The construction of a towing path along the river would also be attended with *extraordinary expense*; indeed so strong is the propensity of its banks to slip, for its whole extent, that the practicability of constructing a permanent towing path on either side, may be doubted. Having first satisfied myself with regard to the existence of these difficulties, I commenced at the Virginia state line, and continued my examinations solely with a view to an improvement of the steamboat navigation, believing also that its improvement would better answer the object desired than a canal. It may however here be well to institute a brief comparison between the advantages to be derived from a canal, and those of a slack water navigation along this valley. An improvement here of any kind is intended to accommodate the country through which it passes, it follows therefore that as a canal must necessarily be confined to one side of the river, its advantage must be in a measure limited. The inhabitants on the canal side of the river will enjoy facilities, which the difficulty of crossing and recrossing will prevent those on the opposite side from enjoying to an equal extent. Villages will spring up and flourish on the canal side, while those on the opposite side must proportionably decay.

On the other hand by an improvement of the river, equal facilities will be enjoyed on either side. The water power created at the dams, will become an object of great and increased value in a country already rich in agricultures, but destitute of these privileges. And the numerous villages which line its banks, and are at present so far from exhibiting the enjoyment of commercial advantages will be restored to permanent prosperity.

Although I am far from believing that this species of improvement, will or rather can be adopted as a general system, yet that it may in many cases, and in this one in particular, be made at great saving of expense, and possess advantages superior to a canal, I have not the slightest doubt.

From the description which has been given of the character of this valley for a canal, it will readily be observed that the height of the banks are unusually favourable for the elevation of water by dams. The bottom of the river is composed of coarse gravel, and in some instances a shallow deposit of sand covers the natural bed of gravel.

Good foundations have however been obtained for all the dams. One striking feature in the character of this river, and which constitutes an important reason in favour of its improvement, is its trifling fall in comparison with the distance; being from the Virginia line to Pittsburgh as follows: Fall seventy-five feet, distance 89 miles. On this distance eight dams and ten locks will be required to make a complete steamboat navigation, with four feet depth of water. The only obstacles to be removed from the bed of the river are a few of the artificial wing dams which have been constructed as an improvement of the ripples, and a few snags which have become fastened to the bed of the river. The removal of these however, owing to the shoalness of the water, will be attended with very little difficulty.

The dams have been located with particular reference to that section of the instructions furnished me, which implies a preservation from injury, the mill works and water power now in use on said river. And with the exception of two instances, the location of dams in the vicinity of these mills have been particularly favourable. The mills along this river are at present supplied by low wing dams, and can only grind in low water. If therefore they should receive their supply from the dams at present proposed, which are calculated to furnish a power throughout the year, their value would be materially enhanced.

As the board have already been furnished with a comparative view of the rise of freshes on pools and on unimproved parts of a river, per Allegheny report, I consider it unnecessary to furnish a repetition in this. It may however be well to add that a very considerable difference exists between the freshes east, and those west of the Allegheny mountains. The rise being nearly one half more on the west side. As it was shown in that report, that the freshes on the Conestoga, which were formerly 12 feet, are since its improvement but 3 feet, it may be safely inferred that the freshes on the Monongahela which are now about 20 feet, would seldom if ever after its improvement exceed 8 feet.

The following will show the respective localities of the dams, and locks, together with the reasons which induced such locations. Dam No. 1. located at New Geneva, is calculated to elevate the water to a level of the surface at the Virginia line. As the water is not four feet deep at this place, if any extension of this improvement should hereafter be affected, to which the citizens of Morgantown look forward with a deep interest, it will become necessary, either to locate another dam within the limits of this state, or to raise dam No. 1. two feet higher; but as this was not necessary for the present examinations, and as it would only serve to increase the lockage, it was omitted. By the location of dam No. 1. at Geneva, a fall of twelve feet is accumulated, and will be overcome by locks No. 1 and 2, of six feet lift each, having a pound between them of 300 feet in length. The advantages of this location will be perceived by its vicinity to the villages of New Geneva, and Greensburg, as these will be essentially benefitted by the valuable

water power created here, and a mill belonging to Colonel Heaton will be saved. The only injury done by the back water, will be the loss of a small saw-mill, owned by Albert Gallatin, and in operation upon George Creek, also 40 rods of road, which it will be necessary to raise three feet. This road passes along the side hill above Greensburgh, and is only raised in low water. Any attempt to save the saw mill by altering the position of the dam, would enhance the cost of the works far beyond the value of the mill. The only ripples on this level, are at the mouth of Cheat and Dunkard. Some excavation will be necessary to remove the wing dam at Cheat. No other obstruction exists, that will require any removal to obtain four feet water.

Dam No. 2, with locks No. 3 and 4 of 6 feet lift each, are located at Daniel Sharpnecks mill. This position was selected for the purpose of saving the mill, but it may be considered favourable in other respects. The materials for the construction of the works, can be conveniently obtained, also the bottom, and banks of the river are well calculated to ensure permanency. A pound between the locks will be necessary 600 feet in length. It will cross a large gravel bar, and terminate at a favourable position for the outlet lock. On this level, several ripples will be overcome, but no river excavation will be required, nor any injury done to private property.

Dam No. 3 with locks No. 5 of 8 lift, is located at Millsborough, and will flow the water back to Sharpneck's mill. On this level, the removal of a part of the wing dams at Armstrong's and muddy creek ripples will be necessary. The location of this dam at Millsborough, will save a grist and two saw-mills owned by Colonel H. Heaton, also a factory, grist and saw mill, owned by Esqr. Bumgarner. A canal will be required at this place 700 feet in length below the dam, in order to afford a favourable position for the lock into good water.

Dam No. 4, is located at Bridgeport with lock No. 6, of eight and a half feet lift. On this level the wing dam at Fishpot ripple must be removed, and the mill at that place owned by Henry Wise will be destroyed. As this mill is but two miles below Millsborough, and the fall in the river inconsiderable, no material variation from the present locations could be affected to save it.

The advantage to be derived from locating dam No. 4 above, instead of below the mouth of Dunlap's creek, will be the saving of a grist and saw-mill on that stream, and near its mouth, owned by Samuel Krepps, and also the lockage of all boats destined to Brownsville or Bridgeport. This plan will however render the removal of the bar and wing dams at that place, a matter of necessity. With regard to the water power to be derived from a dam at this place, nothing need be said, as it must, beyond a doubt, be very valuable.

Dam No. 5, and lock No. 7 of seven feet lift, are located at Baldwin's mill near Cookstown, and will flow the water back to Brownsville. On this level, in addition to the bar and wing dams at the mouth of Dunlap's creek, the removal of the wing dams at

the mouth of Redstone, and at Forsythe's Ripple will be necessary. By the vicinity of this dam to Cookstown, which is a village of considerable size, and the saving of Baldwin's mill, its location may be considered favourable. Some idea may be had of the inclination of the inhabitants in this district for manufacturing from the information which I received at Cookstown, that within three miles of that village, there are in operation, 27 mills of different descriptions. These however, being situated on tributaries of the Monongahela, which furnish very little water during midsummer, are chiefly all stopped at that time.

Dam No. 6, and lock No. 8, of eight and a half feet, are located at Parkenson's lower ripple, and will flow the water back to Cookstown. On this level there are no river obstructions to be removed, yet by the present location of the dam a considerable amount of private property will be destroyed; this will consist of a grist mill situated on the river, and a small saw, grist and fulling mill, on Mingo creek, and near its mouth. These establishments belong to Mr. Parkerson, and are calculated to grind only in low water. To save them *all* from injury, another dam would be requisite, and to save the river mill, the length of the present dam would be increased 170 feet. Therefore in either case, the cost of the improvement would be enhanced beyond the value of the mills. The present position for the dam was selected with due regard to the economy and permanency of the works.

Dam No. 7, and Lock No. 9, of eight and a half feet lift, are located near the mouth of Pine Run, and will flow the water back to Parkersons. On this level there are no river obstructions to remove. A rock foundation is obtained for the lock and I may add, that the positions selected both for the lock and dam, are remarkably favourable.

Dam No. 8, and lock No. 10, of ten and a half feet lift, (being the last proposed are located near M'Clurg's house, two miles above Pittsburg, and will flow the water back to Pine Run. This point for the location of the dam, was adopted as being the last shoal water on the river. From this dam to Pittsburg, the depth of the water was sounded, and ascertained to be sufficient for steamboats in the lowest water. The great width of the river at this place will render the construction of a dam laborious and expensive. Yet its locality cannot be favoured, unless by a dam across the Ohio, with a view to the improvement of that river, and of the harbour of Pittsburgh, in which case this dam can be removed up to Bigg's ripple, where its length would be diminished 390 feet. The lockage two feet, and its cost \$13,700.

I have thus shown the localities of the dam, as selected during our examination, and which from observations taken at that time, and reflection since, I consider decidedly best calculated to render the improvement complete, permanent and economical. With the exception of the mills already mentioned, no other injury will be done by the required elevation of the water, for the whole distance examined. The length of the pools will average ten miles and 70

chains, and will afford (if the dams should be constructed at their present localities) a beautiful surface for the operation of steam boats.

The banks of this river are in many places lined with trees which grow near to the waters edge; these would, after the water is raised to its proper height, decay and fall into the river, and at their fall might be productive of much inconvenience, and possible injury, it is therefore proposed to cut them off, and remove them previous to the construction of the dams; for which purpose a sum as an equivalent for their removal, has been placed in the estimate; this it is also believed will be sufficient to do the grubbing, and to remove the few snags which are now scattered along the river.

The dams proposed on this river are commonly known by the name of crib and frame dams. The bottom of the dam to be built in the form of crib work, and the top of frame work, the whole to be filled in with loose stone; the frame work to be constructed of white oak, and the crib work of oak, or yellow poplar. A correct plan with all the necessary descriptions can be seen by reference to map No. 22 in the atlas. This plan differs from the one proposed on the Allegheny, and is recommended as possessing great strength, being easily secured, and requiring less timber than the Allegheny dams, a material which is not so easily obtained here as in that river.

The plan of the locks on this river is the same as proposed on the Allegheny, to wit: the wall of stone, the top of which are to be eight feet higher than the tops of the dams, the chamber to be 120 feet in length, and 26 feet in width; the form to be the same as the locks now constructing on the Pennsylvania canal, with the exception of the outside next the river, which will present a smooth surface to resist the action of ice or floodwood. The dimensions of these locks are proposed for the same reasons mentioned per Allegheny report. By a reference to the maps, the localities of all the dams and locks as above described, will be seen, together with all the ripples, which it is proposed to overcome by each of the dams, and all the villages situated on either side of the river, which will be benefitted by the proposed improvement.

It may here be well to remark that crib locks filled with stone, can be built on this river for \$800 per foot lift, this plan (although the lock would be possessed of great strength, and doubtless last for several years) cannot be recommended on a river where stone of a good quality are so abundant as on this. Stone locks could be built remarkably cheap on this river but for the great expense to be encountered in preparing the foundation of them below the river surface.

The following table will show the length of the dams, and their height measured from the bed of the river; also their cost, with a recapitulation of the numbers and localities of dams, locks, &c.

The estimate for the dams includes the wing walls, excavation, &c.

# CANAL REPORT.

1	1 & 2	6 each	New Geneva.	380	14	16,020	1,325
2	3 & 4	6 each	Sharpneck's mill.	545	13	14,810	1,672
3	5	8	Millsborough.	790	9	16,590	2,356
4	6	8½	Bridgeport.	660	12	17,220	
5	7	7	Cookstown.	760	9	16,415	
6	8	8½	Parkerson's lower ripple.	785	12	19,745	
7	9	8½	Pine Run ripple.	660	11	16,460	
8	10	10½	{ Near M'Clurg's, two } { miles above Pittsburg. }	1920	13	39,656	
				Cost of Dams, Pounds,		156,916	5,553

Add 75 feet of lockage, at \$1,500 per foot,  
Grubbing and clearing along the banks,  
Removal of wing dams,  
Damage of mills,  
Walling below the locks,

278,895  
27,889  
306,784  
3,265,534

Add 10 per cent.

Total cost,

If crib locks be adopted, the cost will stand,

EDWARD F. GAY, Engineer.

## OHIO REPORT.

In compliance with instructions received in relation to an improvement of this river by locks and dams, our examinations were commenced at Pittsburg, and terminated at the foot of Stone's Island, immediately below the mouth of Beaver.

The depth of water assumed for this improvement is 4 feet. This was done from the conviction that whenever there was sufficient water for steamboats to come up to Beaver, there would also be an abundance of water in the navigation.

The first obstruction which presents itself to the progress of boats drawing four feet water, is a bar at the mouth of the Monongahela river. This bar extends quite across the river, and the depth of water on it during summer months does not exceed three feet. Accordingly the levelled line for the top of dam No. 1 was calculated at an elevation sufficient to raise one foot on to the present surface at Pittsburg.

The distance from Pittsburgh to Beaver, is  $25\frac{1}{2}$  miles, and the fall (to the foot of Stone's Island) is 34 feet. To this add one foot, which it is proposed to raise at Pittsburg, and the lockage will stand 35 feet. This fall it is proposed to overcome by 4 dams and locks, located as follows.

Dam No. 1, being in two parts. The first part at the head of Nevill's island, and across the north channel. This part will be 1060 feet long and 7 feet high. The second part is across the south channel, and its position  $1\frac{1}{2}$  miles above the lower end of the island. This part will be 660 feet long, and 13 feet high. Lock No. 1 of 8 feet lift is located at this place. This location for a part of the dam and the lock was suggested by the desire of accumulating as much fall as possible at this place, as a convenient position for the lock could not be obtained on the north side of the island.

Dam No. 2, with lock No. 2 of 8 feet lift, are located at Wolrey's trap ripple. The length of this dam will be 1040, and its height 13 feet; its position is favourable.

Dam No. 3, and lock No. 3, of 8 feet lift, are located at the foot of Deadman's ripple, a rock bottom is obtained for the lock, the length of the dam is 1050 feet, and its height 14 feet. As a great proportion of the fall on the distance examined, is accumulated between the head of Nevill's island, and the foot of Deadman's ripple; the pools between the 3 dams above noticed, will therefore be but about two and a half miles each in length.

Dam No 4, and lock No. 4, of 11 feet lift, are located at the foot of Stone's island. The length of the dam is 1320 feet, and its height 13 feet. The position of this dam would be much favoured by its location on a bar, near the residence of General Lacock; but in such case its connexion with any improvement up the Beaver, would be attended with considerable difficulty. The point at present selected, may therefore be considered with a view to that subject, as most favourable.

The height of the dams as given above are located from the bed of the river. The plan of the dams, the same as proposed for the Monongahela river. The locks to be built of stone, and to be 140 by 40 feet in the chamber; being calculated for the largest boats that come up to Pittsburg. The great width and height of the gates will render machinery necessary to open them.

By a reference to the maps, the localities of all the dams, and also the names of the ripples overcome by each of the dams will be seen.

The following estimate has been made out with a view to the difficulties to be encountered in the construction of both of the locks and dams.

<i>Dams.</i>	<i>Localities.</i>	<i>Cost.</i>
No. 1	(Both parts included) Nevill's island	\$37,685
2	Wolrey's Trap ripple	31,210
3	Deadman's ripple	34,505
4	Foot of Stone's island	39,650
		<hr/>
		\$143,050
Add 35 feet of lockage at \$1,600 per foot		56,000
Add excavation below locks No. 3 and 4		2,150
		<hr/>
		201,180
Add 10 per cent		20,118
		<hr/>
Total cost		\$221,298

It may be proper to remark before closing this report, that the city of Pittsburg at present suffers much from the want of a harbour on the Allegheny side of the town. A broad gravel beach extends the whole length of the city on a level with the surface of low water, and renders the landing of boats a subject of great inconvenience, in addition to which, the current of the Allegheny is so strong, that during high freshets, it is not without much difficulty that the landing of lumber can be affected. In frequent instances rafts are hurried along by the velocity of the current, for a considerable distance down the Ohio. When their return is only affected by the loss of time and money to the owner. To remedy these inconveniences, to make a perfect harbour on each side of the city of Pittsburg, to benefit the outlets from the canal into the Allegheny and Monongahela rivers, and to render navigable the whole width of these rivers, at this point, in low water, can best, and only be affected, by a sufficient elevation of the proposed dam, at the head of Nevill's island, to flow 4 feet on the common surface of low water at Pittsburg. This done, and with a harbour, it will in point of beauty and safety, be surpassed by none in the western country.

The above has been suggested, as in assuming the level for the top of dam No. 1, no particular reference was had to the harbour



of Pittsburg, further, than the raising one foot additional water on the bar at the mouth of the Monongahela.

All which is respectfully submitted,

EDWARD F. GAY, *Engineer.*

December 3d, 1828.

## Series 9.

H. R. 104.

Minutes of the board of canal commissioners of Pennsylvania, from March 25th to August 21st, 1828, inclusive.

*Harrisburg, March 25th, 1828, 7 P. M.*

The board met in pursuance of notice from the president.

Present, David Scott, Esq. president, Messrs. Roberts, Phillips, Clarke, Enock, Lacock and Mowry.

A report from Dewitt Clinton, engineer, upon the completion of the Juniata division, together with a map and plan of an aqueduct, was received.

The following resolutions having been offered by the president, were unanimously adopted:

*Resolved*, That the acting commissioners and superintendants be a committee to inquire what amount of funds will be required to prosecute the works prior to the first of August next, and at what times, and in what proportions, it will be so required—to report to-morrow.

*Resolved*, That Messrs. Roberts, Enoch, Scott and Montgomery, be a committee to form and report to the board, a plan for active operations during the ensuing season.

*Resolved unanimously*, That the board now adjourn to 3 o'clock to-morrow afternoon.

Adjourned to to-morrow at 3 P. M.

*Harrisburg, March 26th, 1828.*

3 P. M.—The board met.

Present Mr. Montgomery and all who were present yesterday.

Mr. Roberts, from the committee appointed yesterday to form a plan for active operations during the ensuing season, made the following report:

1st. That the particular direction of the railway from Philadelphia to York, and the general charge of the canal from Swatara to Columbia, and of the survey from Columbia to Conestoga, be assigned to Major Wilson. That Mr. Kneass have charge of completing the eastern division, of the extension to Columbia, and the

survey to Conestoga, subject in regard to the eastern division to the occasional directions of Mr. Rawle, and with regard to the rest, to the directions of Major Wilson.

2d. That Mr. Whippo be appointed engineer of the North Branch line.

3d. That Mr. Rawle be appointed engineer of the West Branch line.

4th. That Col. Clinton make the new location on the Juniata; that an arrangement be made, if possible, to furnish him with a competent assistant on the new survey, and to retain Mr. Morrell and Mr. Pursell on the lower line. That Col. Clinton, previous to fixing the upper Juniata line, shall make the necessary examinations through Kishacoquillas valley.

5th. That Mr. Harris and Mr. Livermore be engineers of the line from Pittsburg to the highest point practicable and expedient on the Conemaugh, the duty to be divided between them, under the directions of Gen. Lacock. That each be furnished with such assistants as may be necessary.

6th. That Mr. Sargent be directed to complete the Delaware location as far as Easton—that he be furnished with a competent assistant to take charge of that part of the line now under contract, during his absence above; that the superintendent of the Delaware division be authorised to put under contract the portion from Taylorsville to New Hope as soon as practicable and expedient, and also to contract for such stone and wood work between Bristol and Taylorsville, as in the opinion of the engineer, can be advantageously executed within the present season.

7th. That Mr. Ferguson continue in charge of the French creek feeder, and be directed to prepare the remainder of it for contracts. That if necessary, he also be requested to make the survey from Pittsburg to Beaver.

8th. That Mr. Roberts be offered employment in the service of the commonwealth, and in case he accept, that the location of the portage line across the Allegheny mountain, and the survey through Bedford county and Woodcock valley be assigned to him.

9th. That Mr. Gay be employed, if he consent to serve, to make the survey required by law, on the Allegheny, Monongahela and Ohio.

10th. That an effort be made to induce major Douglass to execute the survey from Carpenter's point to Easton.

11th. That Mr. Robinson be employed if possible, to execute the several rail road examinations between the Susquehanna and the waters of the Delaware.

12th. That Mr. Guilford continue in charge of the Susquehanna division.

13th. That the questions relating to the connexion of the Susquehanna and Juniata divisions, and to the size of locks on the Juniata division, be determined at the present session of the board;

14th, That a competent person be employed on each of the new lines of canal, to obtain releases and to perform the other duties relating thereto, required by the fifteenth section of the late act of assembly. That it shall be the duty of such persons to precede the locating engineer with a view to absolute releases, and to follow him on the line of his location in order to ascertain the amount of damages occasioned or claimed.

15th, That the acting commissioner of the western division have power when he deems it necessary, to appoint a competent person to superintend and keep in repair the finished portions of that division. That he shall report such appointment for approval by the board at the first meeting thereafter.

16th, That the appointment of collectors and lock keepers be referred to the next meeting of the board.

17th, That the direction of the line from Blairsville to the highest point practicable, &c. on the Conemaugh, and of the Portage surveys across the Allegheny mountain be assigned to general Lacock.

That the superintendent of the Juniata division have charge of the new survey and location on the Juniata.

That the superintendent of the French creek feeder be charged with its extension to Coneaut lake; and the superintendent of the Delaware division; with its extension to Easton.

That all other surveys be conducted under the general direction of the secretary.

That measures be taken to commence the several surveys and locations as soon as practicable, and that the engineers charged with the location of new lines be required to inform the board at their next meeting, at what time such lines will be ready for contract.

18th, That the president and secretary be authorised to employ a suitable person to make the rail road examinations between the Susquehanna and Chambersburg, and that they be also authorised to fill any vacancies which may arise, and to supply any deficiencies in arrangements for surveys during the recess of the board.

The said report having been read by sections and the question being taken separately thereon, it appeared that the whole report was unanimously agreed to.

A communication from Dewitt Clinton, engineer, in relation to the size of locks on the Juniata division, was received and read.

The following resolution was then offered for consideration:

*Resolved*, That the resolution of the board, of the twenty fifth December last, enlarging the dimensions of the locks on the Juniata division, be now rescinded and that the original resolution on that subject be revived.

The question being taken on this resolution, the yeas were Messrs. Enoch, Clarke, Montgomery, Roberts, Phillips and Scott—Nays, Messrs. Lacock and Mowry.

So the resolution was agreed to.

The committee appointed yesterday, to inquire what amount of funds, &c. will be required for the purposes of the canals, reported the following resolutions, which having been read, were unanimously adopted.

*Resolved*, That his excellency the Governor be informed, that there will probably be required, for the construction of canals and the survey of canal routes, the sum of eight hundred and sixty thousand dollars, by the first of August next. in equal monthly instalments on the first of each month. And that the balance of the two millions appropriated, will probably be required in similar monthly instalments by the first of February next.

*Resolved*, That his excellency the Governor, be requested to draw his warrant in favor of the treasurer of the board, at the times and for the instalments in the foregoing resolution named, to be placed with the treasurer of the board, subject to the orders of the several acting commissioners and superintendents, and to the necessary warrants for the purposes of surveys.

*Resolved unanimously*, That the agreement made by A. Lacock, acting commissioner. with James M<sup>c</sup> Ibrn to pay thirty-eight dollars for damages done to his property on the Kiskeminetas division be confirmed.

A memorial from William Ayres, on behalf of the creditors of A. M'Hargue, a contractor on the eastern division, was read and referred to the acting commissioner for that division, with instructions to report to-morrow.

A petition from Arthur M'Gill, asking compensation for expenses incurred in transporting the mail, in consequence of injury done to the road on the western division, was read and referred to the acting commissioner of that division.

Adjourned unanimously to 10 o'clock, to-morrow morning.

*Harrisburg, March 27th, 1828.*

10 A. M.—The board met. Present as yesterday.

The following preamble and resolutions were offered and unanimously adopted.

Whereas by a resolution of the board passed on the 7th May, 1827, the engineers engaged upon surveys are respectively authorized to employ a waggoner at wages not exceeding \$2 50 per day. And whereas in the survey of the North branch, a boat was found to be most convenient, and its construction was authorized by the president of the board, and whereas the nature of the country on the Delaware survey required the use of a boat for a large portion of time, and other means of transportation were occasionally resorted to:

*Resolved*, That the payments made for the purposes aforesaid, to wit: the sum of \$ 279 51 by John Randle, jr. and the sum of \$ 335 by Henry G. Sargent, the same not exceeding the said allowance for a waggoner, be and are hereby confirmed and approved.

The superintendent of surveys laid before the board, the account of John Randle, jr. for expenses on the North branch survey, amounting to \$5082 36, of Charles T. Whippo, for those of the Beaver and Shenango, Alleghany Summit and lower Susquehanna surveys, amounting to \$2,587 43, of John Wilson, for expenses on the Chester and Lancaster surveys, amounting to \$2999 69, of William Wilson, for expenses on his survey on the Alleghany summit, amounting to \$952 62 and of John Mitchell, for expenses of his survey on the same summit, amounting to \$1019 79, which having been examined *Resolved unanimously*, that the said accounts, and the several allowances therein made, be approved and confirmed.

A memorial from the contractors on the French creek feeder, complaining of the interpretation placed upon their contracts by the engineer, was read and referred to the superintendent and engineer.

A memorial from Dr. Bemis in relation to the supply of water for the French creek feeder, and from the citizens of Meadville asking for a basin at that place, were read. Whereupon it was *Resolved unanimously* That it is not expedient to diminish the capacity of the French creek feeder. That the other matters contained in said memorials, be referred to the engineer, with instructions to report thereon at the same time, with his report on the final location of the feeder.

Mr. Lacock, to whom was referred the petition of Arthur M'Gill, made report, whereupon it was *Resolved unanimously*, That the report on the application of Arthur M'Gill, be referred back to the same committee, with instructions to enquire and report upon the following matters.

1. At what period the applicant contracted for the transportation of the mail.
2. At what time, and for what period the road was impassable.
3. Whether there be any law which would authorise the board to pay damages in any case, under the circumstances of that of the applicant. And generally any fact which will enable the board to come to a just decision of the matter.

Report to be made to the next meeting.

Mr Lacock presented a report from James D. Harris engineer, on the situation of the western division, and from Alonzo Livermore, engineer on that of the Kiskiminetas division.

Mr. Mowry as instructed made a report in writing, upon the memorial of the creditors of Alexander M'Hargue, which was ordered to lie on the table.

A communication from the Hon. Daniel Sturgeon, and other members of the Legislature representing districts bordering on the Monongahela, was read and referred to Messrs. Roberts, Lacock and Montgomery.

*Resolved unanimously*, that the contract made by C. Mowry, acting commissioner, with Alexander Chambers, to pay one thou-

sand dollars, damages, for destruction of his ground, house, stable &c. on the Eastern division, and, the contract made by the same commissioner, with Barbara Dubbs, to pay \$350 for damages done to her property on the Susquehanna division, be approved and confirmed.

A memorial from citizens of Harrisburg, in regard to the road bridge at Market Street, was read, and it was *resolved*, That the board will proceed to view the bridge after the adjournment this afternoon.

A memorial from members of the Legislature from Lancaster county, asking that a basin may be constructed at the borough of Marietta, was read and laid on the table.

*Resolved, unanimously*, That the acting commissioners constitute a committee to fix the rates of compensation for the principal engineer, and to report thereon to-morrow morning.

*Resolved unanimously*, That the acting commissioner and superintendent on each division of the canal, be directed to report at the next session of the board, an organization of the assistant engineers, and inferior assistants on their respective divisions, with the names of the persons appointed, and the compensation proper to be allowed, for confirmation at that time.

*Resolved unanimously*, That the President request his Excellency the Governor, to draw his warrant on the Treasurer of the canal commissioners, in favor of the board, for the sum of five thousand dollars, for the purposes of the surveys about to be made under the act of the 24th of the present month.

*Resolved unanimously*, That the sum of ten dollars be allowed, and paid to Mr. Whippo, being the amount paid by him to Stacy Potts for services in transcribing his reports of last season, which was accidentally omitted in the settlement of his account.

The following resolution having been read, was unanimously adopted.

*Resolved*, That the board, with the approbation of Henry G. Sargent, their engineer, if his excellency the Governor shall consent, thereto, do now continue the location of the Delaware division of the Pennsylvania canal, from its present termination near Taylor's Ferry, to a point at or near the village of New Hope, according to the plan and report of the said engineer. That the dimensions of the canal and locks on the part now located, shall correspond with those already fixed for said division.

*Resolved unanimously*, That the superintendent of the Delaware division be authorised to employ a clerk when he deems it necessary, at a rate of compensation not exceeding \$2 50 per day.

Adjourned by unanimous vote to to-morrow morning, at nine o'clock.

Harrisburg, March 28, 1828.

Present as yesterday. 9 A. M.

The following resolutions having been read, were unanimously agreed to.

*Resolved* That the board with the approbation of Dewitt Clinton, their engineer, if his excellency the Governor shall consent thereto, do now complete the location of the Juniata division of the Pennsylvania canal, by extending the same from its present termination to a point on the right bank of the Juniata, near the upper end of the Onion bottom hill, designated in the draft of said Engineer as the middle place of crossing, thence by an aqueduct across the Juniata to Duncan's Small island, and thence to connect with the Susquehanna canal near the head of said island. That the dimensions of the canal and locks shall be the same as those already fixed for said division.

*Resolved*, That the superintendent of the Juniata division be directed to advertise for contracts, the portion of line located by the foregoing resolution, and that in regard to the aqueduct, he invite separate proposals for a structure of wood, stone and iron, to be laid before the board for their determination at its next session.

A petition from Mr. M'Namee, a contractor on the Eastern division, complaining of the measurement made by the engineer, and asking redress, was read; and it was

*Resolved*, That the said petition be referred to the acting commissioner with instructions to have a measurement made, and to report all the facts at the next session of the board.

A memorial from Charles Carson, asking for a bridge, &c. was read and referred to the acting commissioner of the Eastern division, with instructions to report at the next session of the board.

Mr. Roberts, from the committee appointed yesterday, to whom, was referred the letter of the members of the legislature, from counties bordering on the Monongahela, made report, That they consider it due to the gentlemen who have called the attention of the board to the importance of the survey on the Monongahela as well as to the interests of the population contiguous thereto, and of the commonwealth, that the said survey should be promptly executed by an engineer of competency and experience.

The committee are gratified to recognize in Mr. Gay, whose name has been placed before the board with strong recommendation, and who has already been designated for that service, these requisites,

Mr. Gay's merits stand further attested by the skill and competency which he has displayed in the construction of the Conestoga navigation.

The said report having been read was unanimously accepted, and the secretary was directed to furnish a copy of the proceedings on this subject, to the gentlemen interested.

*Resolved unanimously*, That to each party engaged on surveys or in exploring, a wagoner or a pack-horseman be allowed at a rate of compensation not exceeding \$3,00 per day.

*Resolved unanimously*, That the acting commissioners and superintendents on the several divisions of the Pennsylvania canal, be directed to pay the salaries of the principal engineers on such

divisions, from the dates to which they have been respectively paid, by warrants on the Treasurer of the improvement fund.

The memorial of Benjamin Herr, in regard to damages suffered by him on the Western division, was read and referred to Messrs. Lacock and Enoch.

A written communication from James Clarke, esq. a member of the board, was read, whereupon the following resolution was unanimously adopted.

*Resolved*, That William B. Mitchell, Esq. who was employed by James Clarke, esq. superintendent upon the Juniata division of the Pennsylvania canal, as an agent to assist him in the performance of his duties, during his indisposition, be allowed at the rate of \$2 50 per day from the 5th of January to the 22d day of March, 1828, the period in which he was actually engaged in the service of the board.

*Resolved unanimously*, That the acting commissioners and superintendents on the several lines of canal now under contract, shall have power at their discretion, and when they shall deem it advisable, to relax the rule which requires that 20 per cent. upon the estimate of the contractor's work shall be retained as security for the performance of the contract.

A communication from George Harrison, John Matts, John Foulkrod, Benjamin Martin, Peter Ihrie, John Fackenthall, Joseph Hergesheimer, Abraham Miller, William H. Rowland, William Lehman and Samuel J. Peirson, Esquires, members of the Legislature, asking that stone locks may be constructed on the Delaware division was read, whereupon the following preamble and resolution were unanimously adopted.

Whereas a number of the members of the legislature have joined in a memorial to the board, requesting that the locks upon the Delaware canal may be constructed of stone instead of wood, as proposed by the engineer upon the line, therefore,

*Resolved*, That the superintendant and engineer on the said line be instructed to examine and ascertain whether suitable stone can be obtained on or near the said line, and make report at the next meeting of the board upon the subject. And also that the said engineer report at the same time a comparative estimate between stone and wooden locks.

Adjourned by unanimous vote to 9 o'clock, to-morrow morning.

*Harrisburg, March 29th, 1828.*

9 A. M.—Present as yesterday.

Mr. Mowry, acting commissioner, presented for confirmation the following agreements for damages, viz: With Peter Pancacke for \$ 55, with George Mish for \$60, with John Shoch for \$ 60; and it was

*Resolved unanimously*, That the said contracts approved and confirmed



Mr. Phillips, superintendant, presented for confirmation the following agreements for damages, viz: with David Compton, James E. Randolph and Simeon Shoemaker; and it was

*Resolved unanimously*, That the said contracts be approved and confirmed.

Mr. Phillips also presented agreements for damages, with A. M<sup>r</sup>. Gaw, John Dickson and Timothy Alden; which, on motion, were referred back to him with instructions to ascertain the facts and report the same at the next session of the board.

*Resolved unanimously*, That the acting commissioner on the western division of the Pennsylvania canal be instructed to advertise and contract for the construction of an outlet river lock on the Conemaugh section of canal—the lock to be situated in the dam, a short distance above the town of Blairsville, in the county of Westmoreland.

*Resolved unanimously*, That the resolution in relation to the pay of principal engineers be continued, and that the committee appointed on that subject be instructed to report at the next meeting of the board.

*Resolved*, That his excellency the Governor be requested to give notice to the gentlemen who shall be appointed canal commissioners from the first of June next, to meet at this place on the second day of June, 1828, at 10 o'clock, A.M.

*Resolved*, That Samuel H. Kneass be appointed an engineer in the service of the board, at the rate of \$4 a day, to commence from the date when Mr. Rawle resigns the immediate charge of the eastern division.

*Harrisburg, June 2d, 1828.*

10 A. M.—In pursuance of a notice from the governor of the commonwealth, Thomas Enoch, Charles Mowry, Jonathan Roberts, John Phillips and Daniel Montgomery, attended as canal commissioners, and having respectively presented their commissions, were organized by the appointment of David Scott, Esq. as president *pro tempore*, and Joseph M<sup>r</sup>. Ilvaine as secretary, *pro tempore*.

*Resolved unanimously*, That the board adjourn to 9 o'clock to-morrow morning, at which time they will proceed to the election of officers for the ensuing year.

Adjourned to 9 o'clock, to-morrow morning.

*Harrisburg, June 3d, 1828.*

9 A. M.—The board met according to adjournment.

Present, Messrs. David Scott, Daniel Montgomery, Thomas Enoch, Charles Mowry, John Sergeant, Jonathan Roberts, Abner Lacock and John Phillips.

Messrs. Sergeant and Lacock presented their commissions, which were severally read.

The oath of office prescribed by law having been administered to the members of the board respectively, it was

*Resolved*, That the board do now proceed to the election of a president and secretary for the ensuing year.

On counting the votes it appeared that David Scott, Esq. was unanimously re-elected president, and that Joseph M'Irvine, Esq. was unanimously re-appointed secretary of the board for the ensuing year.

A written communication from Mr. Scott, positively declining to accept the office of president, was received and read.

Whereupon it was

*Resolved unanimously*, That Daniel Montgomery, Esq. be elected president of the board in the place of Judge Scott.

The following resolution, offered by Mr. Sergeant, was then unanimously agreed to:

*Resolved*, That the board have accepted with regret the resignation of Judge Scott as president, and return him their sincere thanks for his valuable services, and for the kind and conciliating manner in which he has performed the duties of his office.

The superintendent of surveys laid before the board two accounts of D. B. Douglass, engineer, showing the expenses of the survey under his direction, from Conneaut summit to Lake Erie, amounting to \$ 1,644 76, which having been examined,

*Resolved*, That the said accounts be approved and confirmed.

The president and secretary laid before the board an account of the disbursement of the survey fund, showing an expenditure since the last settlement at the treasury, of \$18,355 37, and a balance remaining of \$ 35 96. The said account having been examined, and compared with the vouchers, and being ascertained to be correct, it was

*Resolved*, That the several items in the said accounts be approved and confirmed, and that the same be presented to the accounting officers for allowance.

*Resolved unanimously*, That the president request his excellency the governor, to draw his warrant on the treasurer of the canal commissioners in favor of the board, for the sum of five thousand dollars, for the purposes of the surveys about to be made under the act of 24th March, 1828.

The following resolution having been offered by Mr. Roberts, was unanimously adopted:

*Resolved* That a committee be appointed to inquire into the state of the construction of the eastern division of the Pennsylvania canal, and into the causes of delay in completing it before this time, and at what time it can be finished, as well as at what time Mr. Dibble's contract for finishing the guard locks and the section immediately below, is to be executed, and to make report.

Messrs. Roberts, Lacock and Sergeant were named to compose the committee.

A communication from the board of directors of the Union canal, was read and referred to the same committee.

*Resolved unanimously*, That the president and the late president be a committee to consider and report to the board, what business requires their attention at the present session, and the order in which it ought to be taken up.

Mr. Mowry, acting commissioner, presented for confirmation the following agreements for damages on the eastern and Susquehanna divisions, to wit: with John Mahon for \$120, John Geiger \$150, Peter Keller \$25, Catharine Early \$125, Thomas Elder \$90, Samuel Whitman \$200, Robert Fox \$150, Peter Ritner \$200, Henry Lackey \$3 a day for the stoppage of his mill; which agreements having been read,

*Resolved unanimously*, That the same be approved and confirmed.

Mr. Phillips, superintendent, presented for confirmation the following agreements for damages on the French creek feeder, viz: with Alexander Shaw for \$230, with Francis Ross for \$240, with William A. V. Magan \$150, John Dickson \$85; which agreements having been read,

*Resolved unanimously*, That the same be approved and confirmed.

The superintendent of the Delaware division submitted for confirmation, an agreement made by him with James Johnson of Bristol, to convey to said Johnson in full compensation of damages done to his land by the passage of the canal through the same, one acre and fifty six perches of land, cut off from the lots of Ann Gregg, Samuel Hibbs and William Kinsey, and by those persons conveyed to the commonwealth. Whereupon it was

*Resolved*, That the said agreement be approved and confirmed, and that the superintendent of the Delaware division be instructed to convey to the said Johnson all the right, title and interest of the commonwealth in the said one acre and fifty six perches of land, as derived from the said Ann Gregg, Samuel Hibbs and William Kinsey.

Adjourned to 3 o'clock this afternoon.

*Harrisburg, June 3d, 1828.*

3 P. M.—The board met.

Present Daniel Montgomery, Esq. president, Messrs. Sargeant, Lacock, Mowry, Enoch, Roberts and Scott.

*Resolved unanimously*, That the salary of the secretary of the board be two thousand dollars per annum, commencing from the 10th day of April last, as a full compensation for his various services.

A report from C. T. Whippo, engineer, upon the location of the North Branch canal, was received and read.

Messrs. Phillips and Clarke appeared. The latter gentleman having produced his commission, and taken the oath prescribed by law, took his seat as a member of the board.

Mr. Lacock, acting commissioner, presented for confirmation the following agreements for damages on the lines of canal under

his care, viz: with William Dunlap \$250, John Gallagher \$50, Enoch Jones \$72 50, Crawford M'Kee \$580, Michael Resher \$30, Shelton M'Farland \$35, James Munden \$50, James Gallagher \$20; which agreements having been read,

*Resolved unanimously,* That the same be approved and confirmed.

Mr. Lacock made a further report on the case of Arthur M'Gill, referred to him at the last session of the board, which being read, was laid on the table.

On motion,

*Resolved unanimously,* That a committee be appointed to consider and report upon the compensation proper to be allowed to engineers and assistant engineers.

Whereupon Messrs. Scott, Roberts and Enoch were appointed.

The several acting commissioners and superintendents made reports of the organization of the engineer department upon their respective divisions, which were referred to the committee just appointed.

Several communications from citizens residing near the line of the French creek feeder, urging its completion, and complaining of delay were read.

A report from Mr. Mowry, acting commissioner, upon the situation of the Eastern and Susquehanna divisions was read.

A report from Mr. Lacock, acting commissioner, upon the situation of the Western and Kiskeminitas divisions was read.

A report from Dewitt Clinton, engineer, upon his survey of a canal route through Kishacoquillas valley, shewing the impracticability of the proposed communication, was read.

A communication from Messrs. Shoenberger, Schmuckee and Spang, iron masters, on the Juniata, was read.

Communications from citizens on the North Branch of Susquehanna, asking that the canal along that river may be commenced at the state line, were read.

*Resolved unanimously,* That it is not expedient to commence the North Branch canal at the state line, and that such a commencement, in the opinion of the board, would not be consistent with the intentions of the legislature.

Adjourned to to-morrow morning at 9 o'clock.

Harrisburg, June 4th, 1828.

9 A. M.—The board met. Present, all the members but Mr. Mowry.

A communication from Mr. Guilford, recommending the appointment of some competent mechanic to superintend the dam at Shamokin ripples, was read.

*Resolved unanimously,* That the several acting commissioners and superintendents be authorized to appoint, when they deem it necessary, superintendents of stone and wood work, at a rate of compensation not exceeding \$ 5 a day, having due regard to the

resolution of the board of 2d June, 1827. Such appointments to be reported to the board at the first meeting thereafter.

*Resolved unanimously,* That the board, with the approbation of Charles T. Whippo, their engineer, if his excellency the governor shall consent thereto, do now locate in part the North Branch division of the Pennsylvania canal: Beginning at the end of the forty fifth mile from Northumberland, on the west side of the North Branch, and extending thence down the said river a distance of eighteen miles. That the dimensions of the canal and locks on the part now located shall correspond with those on the Susquehanna division, as already fixed.

*Resolved unanimously,* That the engineer on the North Branch be instructed to prepare, and the superintendent who may be appointed for that line, to advertise for contracts the line of canal located by the foregoing resolution, and also the line of a feeder necessary to obtain a supply of water from the Nanticoke falls.

A report from Mr. Guilford upon the practicability of connecting Penn's creek with the Pennsylvania canal, was read, and it was

*Resolved unanimously,* That the engineer of the Susquehanna division be instructed to form a connection between that division and Penn's creek, by means of a wooden lock, as recommended in his report on that subject, and that the acting commissioner make a contract accordingly.

*Resolved unanimously,* That the communications in regard to the French creek feeder be referred to the committee appointed to inquire into the state of the Eastern Division.

*Resolved unanimously,* That the superintendent of surveys be directed to instruct the engineer of the French creek feeder to complete its location, and report the same for the final decision of the board, by the next meeting of the board.

*Resolved unanimously,* That the President be requested to make further inquiries for an engineer, to execute the rail road surveys west of the Susquehanna, and be authorised to make the necessary engagements.

A report from Mr. Clinton in regard to the plan of erecting an aqueduct over the Juniata, for the purpose of connecting the Juniata with the Susquehanna division, was read and referred to Messrs Sargeant, Lacock and Clarke.

Harrisburg, June 5th, 1823.

Present all the Board.

Mr. Lacock, acting commissioner, made report upon the situation of Dam No. 1, on the Kiskiminetas division, and asked the confirmation of a contract made by him, for repairing the injury done to that Dam by recent floods.

*Resolved unanimously,* That the said contract be approved and confirmed.

The committee appointed to consider the salaries proper to be allowed to engineers and assistants, made report.

Whereupon it was moved, and *unanimously Resolved*, That Messrs. Roberts and Douglass, be paid at the rate of \$2500 a year, while in the service of the board.

It was then moved that the salary of Mr. Clinton be \$2000 a year. On a motion of Mr. Clarke to amend by inserting \$2250, instead of \$2000, the yeas were Messrs. Clarke, Scott and Mowry, 3, the nays Messrs. Lacock, Phillips, Sergeant, Enoch, Montgomery, Roberts, 6. So the motion to amend was lost. The question recurring on the original motion, it was unanimously decided in the affirmative.

On motion, That all other principal engineers, except Mr. Kneass, be allowed at the rate of \$2000 a year, Mr. Scott voted in the negative, and all the other members in the affirmative. So the motion prevailed.

*Resolved unanimously*, That the salary of Mr. Kneass, as engineer, be \$1460, a year.

On motion, That the salaries of Messrs. Morrell, Harris, Scott, Bennet, M'Ilvaine and Hagg, principal assistant engineers, be at the rate of \$4 00 a day, the yeas were Messrs. Roberts, Montgomery, Sergeant, Mowry and Clarke, 5; the nays Messrs. Lacock, Scott, Phillips and Enoch 4. So the motion prevailed.

On motion, that the compensation of Messrs. Parcell, Twining, Lacock, Foster, Petrie, Merrick and Mills, principal assistants, be at the rate of \$3 50, per day, the yeas were Messrs. Roberts, Scott, Montgomery, Sergeant, Enoch, Mowry, Clarke, 7 nays Messrs. Lacock and Philips, 2. So the motion prevailed.

On motion, That Messrs. Faries, Rodrigue and Byers, be allowed as principal assistants, at the rate of \$2 75 per day. All the members voted in the affirmative.

*Resolved unanimously*. That the allowance to sub-assistants and draftsmen, in all cases be \$2 00 per day, and to target men, \$1 50 per day.

*Resolved unanimously*, That the pay of principal assistant engineers, at the rates now fixed, shall commence from the 10th of April last, or from such later period as their services in that capacity commenced.

The committee appointed to enquire into the state of the eastern division, made the following report, accompanied by reports from Mr. Kneass, engineer, and Mr. Groves, Superintendent of masonry.

The report of the engineer hereto annexed, shows the work to be in a state that will require the most vigorous and persevering exertions on the part of the contractors to complete during this season; the Guard Lock and upper sections, the commencement of which was unavoidably delayed, from the time required to make the necessary surveys, to enable the board to locate the feeder down at Duncan's Island. Since the contracts have been in a course of execution, that the state of the water has been very unfavourable to the progress of the work. Those impediments may be expected soon to disappear. The engineer is of opinion that

four hundred hands may conveniently work on the sections of Messrs. Dibble, Green and Cameron, and that they should be required to increase it so, and maintain their force at that amount. A good deal remains to be done as far as Stony creek, including the aqueduct over that stream, which has unfortunately not been prosecuted with diligence, from the mistaken idea that it was unnecessary, while the guard lock and upper sections were in progress. Below stony creek, though a considerable portion of the work remains unfinished, if it be prosecuted with a sufficient number of hands, it may be finished, in the opinion of the engineer, in two months.

The committee believe the outlet locks at the Swatara have been unnecessarily delayed, and it is now found that a large portion of the work now laid out, must be taken up and re-constructed. See the report of the superintendent of masonwork hereto subjoined. The public interest requires these locks should be completed in the shortest time possible, and that no further indulgence should be extended to the contractor. The public suffer daily the most serious inconveniencies, since the Union canal has been finished, for want of them. To permit the contract of the outlet locks to linger in execution as it has done for some time past, would bring disgrace upon the whole system of improvement, and upon the board. Among the causes which have operated to retard the completion of the eastern division of the canal, must be reckoned the extension of the supervision of the acting commissioner to the Susquehanna division, and the contractors below, having become interested in contracts on that division. The committee recommend that the completion of the eastern division be placed under the care of a superintendent, and that the whole attention of the acting commissioner be directed to the Susquehanna division, the Shamokin dam and bridge at Duncan's island, and that the said superintendent be directed to require the contractors to prosecute the execution of their contracts with such a number of hands as will enable them to finish the work at the earliest time, and that on their neglecting to keep up their force, to forfeit and re-let their contracts. The committee therefore submit the following resolutions.

1. *Resolved*, That a superintendent be immediately appointed to take charge of the eastern division of the Pennsylvania canal, and such other works as it may be found to be expedient to place under his care.

2. *Resolved*, That notice be given to the several contractors to employ on the work, at least the number of hands stated in the report of the engineer, and notice also that that they will be required to push on the execution of the work, and finish the same by the time he has mentioned, and that in case of default in either of these particulars, their contract will be declared abandoned.

3. *Resolved*, That the contractor for the two lower locks be required immediately to take down such part of the work as the

engineer shall direct, and to proceed without delay to rebuild the same in a substantial manner, employing the number of hands stated by the engineer.

4. *Resolved*, That in case of default by any contractor to employ the required number of hands, or to push on the work, or to complete it by the time designated, the contract shall be declared abandoned, and the work re let, unless the superintendent and engineer shall concur (for reasons to be stated to the board in writing) in excusing such default.

The question being taken on the report and resolutions separately, it appeared that they were unanimously agreed to.

*Resolved*, unanimously, That Mr. Groves be removed from the office of superintendent of masonry, on the eastern division.

The same committee made the following report in regard to the prosecution of the French creek feeder.

That the secretary promptly communicated the resolution of the board to have the survey and location of the new section of the Conneaut feeder executed, to the acting commissioner, who reports he handed the communication to the engineer, who has reported he would commence his survey and location on the first of this instant, and that it would be ready to be advertised in one month thereafter. They therefore consider it unnecessary for the board to take any further order on the communications from Meadville. Therefore they offer the following resolution.

*Resolved*, That the committee be discharged from the further consideration of the subject.

This resolution being read, was unanimously adopted.

*Resolved*, unanimously, That the board proceed to fix the number and stations of acting commissioners and superintendents.

*Resolved*, unanimously, That it is expedient to appoint three acting commissioners and five superintendents.

Messrs. Lacock, Clarke, Mowry and Phillips, had leave to withdraw during the choice of acting commissioners.

The following resolutions were then offered and unanimously agreed to by the five members present.

*Resolved*, That Abner Lacock be re-appointed acting canal commissioner for the canal along the Allegheny, Kiskiminetas and Coneinaugh, and for the portage across the Allegheny mountain.

*Resolved*, That Charles Mowry be re-appointed commissioner for the Susquehanna division.

*Resolved*, That James Clarke be appointed acting commissioner for the Juniata division, from and after the 10th day of June, inst.

Messrs. Lacock, Clarke, Mowry and Phillips, having resumed their seats at the board, the following resolutions were unanimously agreed to.

*Resolved*, That William Wilson, of Lycoming, be appointed superintendent of the eastern division, and of the line from Swatara to Columbia.

*Resolved*, That Thomas G. Kennedy, be continued as superintendent of the Delaware division.



*Resolved*, That Thomas Woodsides, of Columbia, be appointed superintendent of the north branch division.

*Resolved*, That Andrew M'Reynolds, of Columbia, be appointed superintendent of the west branch division.

*Resolved*, That John Mitchell, of Centre, be appointed superintendent of the French creek feeder.

*Resolved unanimously*, That the engineers upon the new line of canal, be directed to construct locks of wood, or of wood and rough stone combined.

It was then moved, that the board at the close of its present session, shall adjourn to meet at Harrisburg, on the 18th of August next. The yeas were Messrs. Clarke, Montgomery, Roberts, Mowry, Phillips, Sargent. The nays were Messrs. Scott, Lacock, Enoek; so the motion was agreed to.

Adjourned to this afternoon at 3 o'clock.

*Harrisburg, June 5th, 1838.*

3 P. M.—Present all the members.

Mr. Lacock, from the committee on the Juniata aqueduct, made the following report.

The committee to whom was referred the subject of erecting an aqueduct across the river Juniata, near its mouth, and the plans and drafts furnished by the engineer, and the proposals of the several bidders for that contract, report: That after due consideration of the subject they have been induced to recommend to the board the adoption of plan No. 7 as most eligible. This plan proposes the erection of an aqueduct at that place; the abutments and piers of good substantial stone work, and the superstructure of wood. The committee would observe, that the erection of such an aqueduct would cost little more than half the sum that would be required to erect one entirely of stone, and they think the saving in point of expense in the erection of this building, a full equivalent for its want of durability, especially as the state of Pennsylvania, is not at this time engaged in works of a public nature of immense magnitude and extent, that must require a great portion of her pecuniary resources for their completion.

*Resolved*, That the acting commissioner be directed to contract for the erection of the aqueduct, on the plan aforesaid.

The foregoing report and resolution having been read, were unanimously agreed to.

*Resolved*, (Mr. Scott dissenting.) That from the 1st of June inst. there be allowed to R. L. Reese, the sum of three dollars per day for his services as clerk on the western and Kiskiminetas division.

Several communications from Daniel Bemis and others, in and near Meadville, in regard to the surplus water of the French creek feeder, having been read, it was unanimously

*Resolved*, That it is not expedient at this time to take any order on the subject.

*Resolved unanimously*, That Messrs. William B. Foster and Christian Latchaw, be appointed collectors, the former to reside

at Alleghany town, on the westren division, and the latter at the Salt works on the Kiskiminetas division, and that before entering on their duty, they give sufficient security according to law.

Mr. Phillips having withdrawn from the meeting, a written communication from him inquiring the reasons for his not being appointed an acting commissioner, was received. The same having been read, the folowing resolutions were unanimously adopted.

*Resolved unanimously*, That the president be requested to inform General Phillips, in reply to his letter this day received that as the act of last session prohibits the appointment of a commissioner to the office of superintendent, the board could not re-appoint him superintendent, and having decided that it was not expedient to appoint more than three acting commissioners lest they should thereby interfere with the spirit and intention of the act (which decision was approved by General Phillips,) they were reduced to the necessity of leaving out one of the commissioners heretofore employed, and upon a full view of all the circumstances, they thought that a change of the Conneaut line would occasion the least public inconvenience, and that if personal considerations could have any weight, the other members had the best claim to be retained, having all been appointed before general Phillips.

*Resolved unanimously*, That the acting commissioner of the eastern division, be requested to continue his services at his present station, until William Wilson, Esq. shall arrive, and be prepared to take upon himself the duties of superintendent, according to his appointment, and that the said acting commissioner be directed then to hand over and deliver to Mr. Wilson, all books, papers, drafts, and other things whatever, relating to that part of the line of which he has been appointed superintendent.

*Resolved unanimously*, That John Phillips, Esq. be and he hereby is directed to hand over and deliver to John Mitchell, Esq. appointed superintendent of the French creek feeder, as soon as the said John Mitchell shall be ready to take upon himself the duties of superintendent, all books, papers, drafts and other things whatever relating to the said line.

*Resolved unanimously*, That the acting commissioner on the eastern division of the Pennsylvania canal, be authorised to pay to James S. Espy & co. the sum of three hundred dollars, as compensation for the destruction of their distillery by the said canal; provided that the said James S. Espy & co. give a receipt in full of their entire claims for damages.

*Resolved*, That the superintendent of the Delaware, North branch, West branch and eastern divisions, and of the French creek feeder, be respectively authorised to employ a clerk at a rate of compensation, not exceeding \$2 50 a day.

*Harrisburg, August 18th, 1828.*

7 P. M.—This being the day to which the board stood adjourned—Messrs. Mowry, Enoch, Phillips, Lacock and Clarke attended Adjourned to 9 A. M. to-morrow.

*Harrisburg, August 19th, 1828.*

The board met.

Present Daniel Montgomery, Esq. president, Messrs. Sergeant, Lacock, Clarke, Roberts, Mowry, Enoch and Phillips.

A report from major Wilson on a survey and location of a part of the rail-way line from Columbia to Philadelphia, was read—whereupon the following resolution was unanimously adopted.

*Resolved*, That though the board perceive no reason to disapprove the location made by major Wilson so far as it goes, they do not deem it expedient finally to approve the same, until the examination shall be completed to the eastward, and the remainder of the location be reported.

A report from James Ferguson, engineer upon the extension of the French creek feeder, and a memorial from citizens of Meadville, in regard to a basin at that place, were presented.

*Resolved unanimously*, That the board with the approbation of James Ferguson, their engineer, (if his excellency the Governor shall consent thereto) do now continue the location of the French creek feeder, from its present termination near the mouth of the Conneaut outlet, according to the reports and draft of the said engineer, to Muddy run, a distance of ten miles and .96 That the dimensions of the part now located, shall correspond with those of the portion already begun.

A report from H. G. Sargent, engineer, upon the further extension of the Delaware division, was read.

*Resolved unanimously*, That the board with the approbation of Henry G. Sargent, their engineer (if his excellency the Governor shall consent thereto) do now continue the location of the Delaware division of the Pennsylvania canal, from its present termination near the village of New Hope, up the valley of the Delaware, according to the report of said engineer, to a point near Godfrey Raub's, being a distance of thirty-one miles. That the dimensions of the canal and of the locks necessary thereto, be the same already fixed for said division.

A report from C. T. Whippo, engineer, upon the location of the North Branch division, to Northumberland, was read.

*Resolved unanimously*, That the board, with the approbation of Charles T. Whippo, their engineer (if his excellency the Governor shall consent thereto,) do now complete the location of the North branch division of the Pennsylvania canal. Beginning at the end of the location made by resolution of June last, and extending thence according to the plan and report of said engineer, to the junction of the north and west branches at Northumberland, thence to connect with the west branch division, and to communicate by

locks with the pool of, the dam at Shamokin rippled. That the dimensions of the canal and locks correspond with those of the Susquehanna division.

Adjourned to this afternoon at 3 o'clock.

*Harrisburg, August 19, 1828. 3 P. M.*

Present as this morning.

A report from Col. Clinton, engineer, upon the extension of the Juniata division to a point near Huntingdon, and upon his survey of a route through Kishocoquillas valley, was read.

*Resolved unanimously,* That the board with the approbation of Dewitt Clinton, their engineer, (if his excellency the Governor shall consent thereto) do now continue the location of the Juniata division of the Pennsylvania canal; beginning at its present termination at Lewistown, and extending thence on the north side of the Juniata river, to the fording place opposite Hanawalt's farm; thence by aqueduct across said river, and up the south side thereof to the head of Jack's narrows, thence by aqueduct across the same river and up the north side thereof, to the end of the 45th mile from the place of beginning. That the dimensions of the canal and locks shall correspond with those already fixed for said division.

A report from N. S. Roberts, on the survey of a portage route across the Allegheny mountain, so far as it has advanced, was read.

A report from James D. Harris, engineer, upon the extension of the Pennsylvania canal from Blairsville up the Conemaugh, to a point near Blairsville, was read.

*Resolved unanimously,* That the board with the approbation of James D. Harris, their engineer, (if his excellency the Governor shall consent thereto) do now extend the Pennsylvania canal up the Conemaugh river from the outlet lock near Blairsville, according to the report of the said engineer, to a point one mile below the village of Johnstown. That the dimensions of the canal and locks on the portion now located, shall correspond with those of the western division.

A report from S. H. Kneass, engineer, upon the extension of the Eastern division, from the mouth of Swatara to Columbia, was read.

*Resolved unanimously,* That the board, with the approbation of Samuel H. Kneass, their engineer, (if his excellency the Governor shall consent thereto) do now continue the location of the Eastern division, from the outlet locks near the mouth of Swatara, down the east side of the Susquehanna river, to a point near the bridge at the borough of Columbia. That the dimensions of the canal and locks shall correspond with those already fixed on the Eastern division.

A report from Francis W. Rawle, engineer, upon the survey and location of a canal line on both sides of the West branch, accompanied by drafts and estimates, was read.

A number of memorials from citizens on both sides of the West Branch were received, and it was

*Resolved*, That the gentlemen interested in the question of location on the West Branch, be requested to present their views to the board in writing.

Mr. Kennedy superintendent of the Delaware division, presented for confirmation, the following agreements for damages to land. With heirs of Jesse Morris for \$152 50, George Grubham \$170 62, Samuel Vanghen \$200 and also with Jacob L. Welton, to pay in lieu of bridge and fencing \$315 23, with Mahlon Yardley, to pay in lieu of fencing \$171 75, and with William Paff, to pay in lieu of fencing \$177.

*Resolved unanimously*, That the said agreements be approved and confirmed.

*Resolved unanimously*, That the president request his excellency the Governor, to draw his warrant on the treasurer of the canal commissioners, in favor of the board, for the sum of five thousand dollars, to be applied to the purposes of the surveys now making or about to be made under the act of 24th of March, eighteen hundred and twenty-eight.

*Resolved unanimously*, That the acting commissioners and superintendents respectively, now in Harrisburg, be directed to lay before the board at the meeting to-morrow, a statement of the amount which will probably be required on their lines during the present season, for carrying on the work now under contract, and the time or times when the same will be wanted, and that the secretary be directed to ascertain and report the amount of money which will be in the treasury for the public work (after paying existing drafts) and when the same may be drawn.

A memorial from citizens of Harrisburg, asking that the towing path of the canal, where it passes through the borough, may be changed, was read.

*Resolved unanimously*, That the superintendent of the eastern division, be directed to cause a towing path to be made on the side opposite Harrisburg, according to the prayer of such memorial.

Mr. Lacock, acting commissioner, presented the following agreements for confirmation: with John Drummond, for damages to land \$ 350, Skelton M'Farland, \$ 400, Samuel Tilmage, for protection of salt works, Charles Bovard, for clearing off timber, Joseph Huster, for removing house \$ 270, David Brenneman, for injury to salt works, \$ 575, John Johnston for removing salt house \$ 50.

*Resolved unanimously*, That the said agreements be approved and confirmed.

*Resolved*, That the board will proceed to-morrow to view the works on the eastern division, near the mouth of Juniata.

Adjourned to 5 o'clock P. M. to-morrow.

*Harrisburg, August 20th, 1828.*

5 P. M.—The board met. Present as yesterday.

A memorial on the subject of a basin at Meadville, being brought up for consideration it was

*Resolved unanimously,* That the superintendent of the French creek feeder, be authorized to construct a basin at Meadville, according to the request of the citizens, provided the commonwealth is indemnified against the payment of damages for land occupied by the basin.

Mr. Mitchell, superintendent of the French creek feeder, presented an agreement with John Gibson, to pay \$ 450, for damages to land.

*Resolved unanimously.* That the said agreement be approved and confirmed,

Mr. Mitchell, presented also an agreement with John Reynolds, for the purchase of land injured by the canal, at the price of \$ 100.

On motion

That such agreement be confirmed, the yeas were Messrs. Sergeant, Mowry, Lacock, Roberts, Enoch, the nays, Messrs. Clarke and Montgomery.

So the agreement was confirmed.

Mr. Mitchell presented for confirmation, an agreement with Mr. Cooper, for the purchase of land injured by the canal, at the price of \$ 200,

On motion

That such agreement be confirmed, the yeas were Messrs. Sergeant, Mowry, Lacock, Roberts, and Montgomery, nays Messrs. Enoch, and Clarke.

So the agreement was confirmed.

*Resolved unanimously,* That the clerk of the Juniata division, be allowed a compensation at the rate of \$ 3 a day, from the 1st day of September next.

The board then proceeded to consider the questions relating to the location of a canal on the west branch of the Susquehanna.

The report of the engineer having been read with the memorials and written arguments of the citizens interested, it was

*Resolved,* That this question together with the documents be referred to a committee.

Messrs. Roberts, Mowry, and Phillips, were named to compose the committee.

*Resolved unanimously,* That the president be authorised to request his excellency the Governor, to draw his warrant on the treasurer of the canal commissioners, for such further sum or sums not exceeding in the whole, ten thousand dollars, as may be necessary for the surveys now making or about to be made under the act of 25th March, 1828.

Adjourned to 9 o'clock, to-morrow morning.

*Harrisburg, August 21st, 1828.*

9 A. M.—The board met. Present as yesterday.

The committee appointed to consider the question in regard to the location of a canal along the West Branch, made report:

That they have carefully read and considered the report of the engineer, and the representations of the committees appointed by the citizens interested, to address the board on the subject, and are clearly of opinion that the route along the eastern side is preferable, and should be adopted. They therefore propose the following resolutions:

*Resolved*, That the board with the approbation of Francis W. Rawle, their engineer, if his Excellency the Governor, shall consent thereto, do now locate the West Branch division of the Pennsylvania canal as follows: Beginning at a point near Sugar camp island, on the left bank of the West Branch and extending thence down said branch, according to the report and draft of said engineer, to the forks of the Susquehanna river, at Northumberland, there to unite with the North Branch division. That the dimensions of the canal and locks, shall correspond with those of the Susquehanna division.

*Resolved*, That a towing path and road bridge be erected across the West Branch at the town of Northumberland, with outlet locks from the North and West Branch canals into the pool of Shamokin dam.

The said resolutions having been read, were unanimously adopted.

Mr. Lacock, acting commissioner, presented for confirmation, a contract with J. Bills, to repair the damage occasioned by floods upon dam No. 2, on the Kiskiminetas division.

*Resolved*, unanimously, That the said contract be approved and confirmed.

Thomas Enoch, Esq. gave notice to the board that he had resigned his office of canal commissioner, and withdrew from the meeting.

Mr. Wilson, superintendent of the Eastern division, presented for confirmation a contract with Daniel Books, to pay \$70 for damages done to his land.

*Resolved unanimously*, That the said contract be approved and confirmed.

*Resolved unanimously*, That the following persons be now appointed lock-keepers on the Western division. For lock No. 1, W. W. Gibson; for lock No. 5, John Spear; for lock No. 6, John Leggit; for lock No. 9 and 10, Richard Getty.

*Resolved unanimously*, That George King be appointed lock-keeper for lock No. 3, on the Kiskiminetas division.

Mr. Clarke having retired from the meeting a communication from him in relation to the employment of W. B. Mitchell, as his agent on the Juniata division, during his illness, and to the refusal of the accounting officers, to allow the wages paid to said Mitchell, was read, and on motion laid on the table.

*Resolved unanimously*, By the six members present, namely; Messrs. Sergeant, Lacock, Mowry, Philips, Roberts and Montgomery, That Thomas Enoch, esq. be appointed supervisor of the Western division.

*Resolved*, That the acting commissioner of the Susquehanna division, be authorised to pay John Cake \$55, the amount estimated by the engineer, as the value of removing his building on section 44 of that division.

Mr. Clarke resumed his seat at the board, a communication from the Governor covering the copy of a proposition from the cashier of the bank of Pennsylvania, in relation to the instalment of this year's loan, having been read and considered, the following resolutions were offered and unanimously agreed to.

*Resolved* That his excellency the Governor, be requested to accept the proposition of the Bank of Pennsylvania, as contained in a letter from the cashier of the thirteenth instant, varying the instalments of the permanent loan, so that \$293,094 00 may be received into the treasury immediately, and the further sum of \$141,151 00 on the first of each succeeding month, to the first of February.

*Resolved*, that his excellency the Governor, be further requested, in case it shall appear by the amount of money required for canal purposes within the next 3 months, that the sum of \$150,000 advanced out of the State treasury, cannot be repaid by the last day of November, without embarrassing the operations of the canal, to negotiate further with the bank of Pennsylvania, for the anticipation of the instalment due on the first of February, so as to bring in that instalment by the last day of November, in payment of said advance.

*Resolved*, That the President of the board be authorised, in case it shall appear that the arrangements contemplated by the foregoing resolutions will not be sufficient, to give notice to the Governor, and request him so far to anticipate the January instalment, as to meet such deficiency.

*Resolved*, That the Board will meet for the purpose of reporting to the Legislature, on the 5th day of December next.

*Resolved* That the several acting commissioners, and superintendents, be instructed to inform the secretary by the first of November next, how much money has been expended from this time to that date, and also what further amount they will require within the next three months.

The following resolutions having been offered, were unanimously adopted.

*Resolved*, That the board will place under contract, the present season, the following additional lines of canal.

1. From Blairsville on the Conemaugh, to a point near Johnstown, as located by Mr. Harris.
2. The French creek feeder as far as Muddy run.
3. A further portion of the North Branch, so as to make the part already contracted for, 45 miles.



4th. On the West branch, from Sugar Camp Island, to the forks at Northumberland.

5th. On the Juniata 45 miles beginning at Lewistown, and ending above Hunterdon.

6th. On the Delaware, from New Hope to a point near Godfrey Raub's tavern, as recommended by Mr. Sargeant.

7th. Ten miles of the line between the mouth of Swatara and Columbia, as located by Mr. Kneas.

*Resolved*, That the several engineers, be directed to prepare, and the acting commissioners and superintendents, to advertise the said lines for contracts, in the following order: 18 miles on the Delaware, and the remainder of the French creek feeder, as soon as practicable. The West branch line on the first of October, and the remaining lines not earlier than the 15th. of October, nor later than the first of December: *Resolved*, That in the contracts so made, except for the Couemaugh line, the French creek feeder, and the first 18 miles on the Delaware, it shall be stipulated that no payment be made for the work done in pursuance of such contracts, before the 18th day of January next.

Adjourned to meet in Harrisburg on the 5th day of December next.

*Harrisburg, Dec. 5th, 1828.*

The board met this day according to adjournment.

Present Daniel Montgomery Esq., President Messrs. Roberts, Scott, Mowry, Phillips, Clarke and Hammond.

Reports from Mr. Mowry, acting commissioner, and Messrs. Kennedy, Woodside, M<sup>r</sup>Reynolds and Mitchell superintendents, accompanied by documents, showing the situation of the several lines of canal under their care, were read.

A report from Moncure Robinson, engineer, upon the surveys of canal and rail-road lines under his direction, was read.

A report from John Wilson, engineer, upon the rail-road line from Columbia to Philadelphia was read, and on motion, it was referred to Messrs. Roberts, Hammond and Scott.

A petition from citizens of the borough of Marietta, asking a change in the location of the canal, as now fixed through that place, was read and laid on the table. Two communications from citizens of Bedford county, in regard to the locations of the Pennsylvania canal on the upper Juniata, were read and laid on the table.

Adjourned to to morrow at 9 A. M.

*Harrisburg, Dec. 6th, 1828.*

Present as yesterday,

A report from D. B. Douglass, engineer, upon the survey of a canal from Carpenter's point along the Delaware to Easton was read, and the following resolutions were unanimously adopted.

*Resolved*, That the board with the appropriation of David B. Douglass their engineer, if his Excellency the Governor shall consent thereto, do now fix the location of a line of canal along the

west side of the Delaware river, from Carpenter's point to Easton, according to the report and recommendations of the said engineer.

*Resolved*, That the Secretary be requested to prepare the sketch of a report to the Governor, and to present the same at the next meeting of the board.

Mr. Mowry, acting commissioner, presented for confirmation a contract with Frazer Montgomery, to pay \$200 00 for damages, and in lieu of a Bridge; and with Robert Harris to pay \$500 for damages.

*Resolved unanimously*, That the said contracts be approved and confirmed.

Mr. Phillips presented a petition from Henry Crowell, a contractor on the French Creek feeder, for relief; *Resolved unanimously*, That the prayer of the petition cannot be granted.

Mr. Wilson, superintendent, presented for confirmation, a contract with William Grimshaw to pay \$193 00 for damages.

*Resolved unanimously*, That the said contract be confirmed on condition that the quantity of ground required for a lock house be considered as included in the release of Mr. Grimshaw.

Mr. Wilson also presented an agreement with John Fox, to pay \$185 25 for damages. *Resolved unanimously*, That the said agreement be confirmed, and that Mr. Wilson be authorised to pay the amount, on the execution of a release by John Fox and wife, duly acknowledged.

Mr. Wilson presented also an agreement with John Frantz to pay \$250 for damages.

*Resolved unanimously*, That the said agreements be approved and confirmed.

*Resolved*, That a committee be appointed to consider what business will require attention at this session of the board, to report on Monday morning.

Messrs. Roberts, Mowry and Phillips, were appointed on that committee.

Adjourned to 9 o'clock, A. M. on Monday the 8th, inst.

Harrisburg, Dec. 8th. 1838

9 A. M.—The board met.

Present Daniel Montgomery Esq. President, Messrs Lacock, Scott, Mowry, Phillips, Clarke. Roberts and Hammond.

A petition from Christian Brobst and others, asking for the construction of a road opposite Catawissa, was read and referred to Messrs. Clarke and Roberts.

A communication from William A. Lloyd of Northumberland, in regard to the canal and basin at that place was referred to Messrs. Montgomery, Hammond and Mowry.

Mr. Phillips presented for confirmation, an agreement with William Magaw, to pay \$191 81 damages, for the removal of a hay press on the French creek feeder.

*Resolved*, That the said agreement be approved and confirmed.

Releases by Lewis S. Corryell and T. G. Kennedy, of Bucks

county, of their right to fencing where the Delaware division passes through their land, in consideration of 75 cents-a rod being paid to them, were read and unanimously approved.

The committee appointed to consider what business will require attention at the present session of the board, made report.

The following resolution was then offered and unanimously agreed to.

*Resolved*, That the superintendent of the West Branch division be authorised to contract for the construction of a turnpike and towing path bridge across the West Branch at Northumberland, and that he be further authorised when he shall deem it necessary, to contract for a tow-path, and the clearing of a channel for two miles above the dam at Sugar Camp island.

The following resolutions having been read, were unanimously adopted.

*Resolved*, That for the purpose of providing funds necessary to continue the canals now under contract, it be recommended that a permanent loan of \$800,000 be negotiated as soon as practicable.

*Resolved*, That in order to meet the wants of the improvements before the said permanent loan can be arranged, it be further recommended that so much of the balance now in the treasury of the commonwealth as can conveniently be spared, be temporarily transferred to the treasury of the canal, and that the Governor be further authorised to obtain a temporary loan for such additional amounts as may be necessary. Such temporary advances to be repaid at the pleasure of the Governor at any time before the first day of June next.

*Resolved*, That Messrs. Roberts, Lacock and Clarke, be a committee to present to the Governor the foregoing resolutions and to confer with him thereupon.

A report from Nathan S. Roberts, engineer, upon the surveys made by him, with a view to determine the best line for a portage across the Allegheny mountain, was read.

The board being informed that Mr. Roberts had accepted employment upon the Potomac and Ohio canal, and therefore declined further service in this state, the following resolutions were offered and unanimously adopted.

*Resolved*, That Moncure Robinson, Esq. be appointed engineer for the portage line across the Allegheny mountain, this appointment to take effect, as soon as his duties with reference to surveys of the past season, shall have closed.

*Resolved*, That Mr. Robinson be furnished with the report, field notes, level books and drafts of Mr. Roberts, in relation to this portage, and that he be directed as early as the weather will permit, to proceed to the execution of the duty now assigned him.

*Resolved*, That the attention of Mr. Robinson be particularly directed to three points. 1. The construction of a railway between

the waters of Juniata and Conemaugh, overcoming the summit by means of stationary engines or self-acting planes with intermediate levels or moderately ascending planes. 2. The construction of a Mac-Adamized turnpike of the best kind between the same points. 3. The suggestion of any other plan which may occur to him, as calculated to afford the best accommodation to trade.

*Resolved*, That Mr. Robinson be directed as soon as he shall have made the necessary examinations, to furnish the board with his views and opinions in detail.

The secretary presented a partial sketch of a report to the legislature, which having been read, ordered, that the same be completed and read again to-morrow morning.

Adjourned to 3 o'clock, this afternoon.

*Harrisburg, December 8, 1828.*

3 P. M.—The board met.

Present, Mr. Montgomery, president, Messrs. Lacock, Phillips, Hammond, Roberts and Mowry.

A remonstrance from citizens of Harrisburg, against the change of the tow-path through the borough, was read and referred to Messrs. Lacock, Hammond and Phillips.

Mr. Roberts, from the committee appointed this morning, to present to the Governor, certain resolutions of the board in regard to funds, reported that they had performed the duty assigned them, and that they had received an assurance from the Governor that the subject should command his earliest attention.

Mr. Mitchell, superintendent of the French creek feeder, presented for confirmation, agreements for damages with John Gibson, Abraham Sewer and John Patterson.

*Resolved unanimously*, That the said agreements be approved and confirmed.

Adjourned to 9 o'clock, to-morrow morning.

*Harrisburg, December 9th, 1828.*

The board met:

Present Mr. Montgomery, president, Messrs. Scott, Roberts, Phillips, Hammond, Lacock and Mowry.

A report from Edward F. Gay, engineer, on the surveys executed by him along the Allegheny, Monongahela and Ohio rivers, was read.

Mr. Roberts, from the committee appointed to consider the report of major Wilson, on the rail-way line from Columbia to Philadelphia, made the following report:

That after a consideration of the subject, in reference to the point of time designated for its completion, in the law which provides for the construction of the road and the vigorous prosecution of the other lines of improvement, none of which promise more public benefit than this, the committee believe that 200,000 dollars

may be conveniently applied to the construction of the road during the ensuing year. This sum will be sufficient to form the road for about one half the distance between the Susquehanna and the Delaware, and will afford an assurance that the road will be completed simultaneously with the lines of canal above, if not within the time prescribed by law.

The survey of the line as returned by the engineer, gives a strong assurance that it is the best the ground permits, and the point of contact with the city of Philadelphia is by the shortest line, and the upper and lower levels are connected by one inclined plane. It is not conceived that a termination of the road at one territorial point unconnected by a branch or branches reaching navigation, and the larger front the better can accommodate the road. The committee concur that a branch from the lower level at Belmont down to tide water opposite, will be absolutely necessary to accommodate the trade which may be expected to pass over the line. The committee do not wish to interfere with the confirmation of the line to Broad street, by a bridge over the Schuylkill, but they do not apprehend they can commit an error in estimating the branch down the Schuylkill, from Belmont, as entitled to the earliest attention. This termination however, would not meet the provisions of the law which requires a termination at the city of Philadelphia, and not at tide on its western front. They therefore submit the following resolutions:

*Resolved*, That the board with the approbation of John Wilson, their engineer, if his excellency the Governor shall consent thereto, do now locate the Pennsylvania rail-way, beginning at the termination of the eastern division of the Pennsylvania canal in the borough of Columbia, and extending thence according to the report and draft of the said engineer, through the northern part of the city of Lancaster, across the gap of Mine ridge to the station marked for an inclined plane near the residence of the late Judge Peters, on the Schuylkill river, thence by bridge across the Schuylkill, and by the line of the old Union canal to the corner of Broad and Callowhill streets in the district of Spring garden, and thence along the middle of Broad street until it crosses the line of the city of Philadelphia.

*Resolved*. That the board will advertise for contracts as soon as practicable, the road formation of twenty miles from the foot of the inclined plane on the Schuylkill, extending westward, and of twenty miles more extending eastward from Columbia.

*Resolved*, That it be earnestly recommended to the Legislature to authorise the board to construct a branch of the said rail-way, from the foot of the inclined plane near Judge Peters', down the west side of the Schuylkill to a convenient point on the sloop navigation of that river.

The question being taken on these resolutions separately, the first resolution was unanimously agreed to—On the second, the yeas were Messrs. Scott, Roberts, Phillips, Hammond, Mowry and Montgomery—6, Nay Mr. Lacock—1.

On the third resolution all the members present voted in the affirmative.

So the report and resolutions were adopted.

Mr. Clarke appeared, and reported to the "board that" in consequence of the resignation of Mr. Purcell, as principal assistant engineer on the Juniata division, he had, during the recess of the board, assigned his duty to Barent Schuyler, one of the sub-assistants on that division.

Resolved, That Barent Schuyler be appointed a principal assistant engineer, on the Juniata division, at a salary of \$3 50 per day, to commence from the date of Mr. Purcell's resignation.

A report from Mr. Kennedy, superintendent of the Delaware division, stating the resignation of Emerson M'Ilvaine, the senior assistant engineer on that division, and stating what arrangements were proper to complete the engineer corps, was received, and it was

Resolved unanimously, That the salary of F. W. Mills, principal assistant engineer on the Delaware division, be fixed at \$4 a day, from the date of the resignation of E. M'Ilvaine. That Charles Schlatter and James Sargent, be appointed principal assistants on the same division, at the rate of \$3 a day, to commence from the date of the said resignation.

The following resolution, offered by Mr. Mowry, was unanimously agreed to.

Resolved, That the compensation of John A. Byers, as a principal assistant engineer on the Susquehanna division, be fixed at \$3 a day, from the date of the commencement of his services in that capacity, an error having been made in fixing it at \$2 75 a day, at the meeting in June last.

Mr. Clarke, presented for confirmation, agreements with Andrew Vancamp, to pay \$ 25, with Jacob Earhart, to pay \$36; with Amos Farnum, to pay \$ 40, with Amos Gustin, to pay \$ 75, with John Cummins, to pay \$300, and with Mary Shuman and others, to pay \$ 150.

*Resolved unanimously,* That the said agreements be approved and confirmed.

Mr. Mowry presented for confirmation, agreements with Lyman Hodge, to pay \$ 55, with James Dill, for digging a well on section 31, with Rebecca H. Dumir, for removing a fence \$ 20 44, with J. App, for removing buildings and fence, \$ 42 20, with Martin Weaver, for removing fence, \$ 25.

*Resolved unanimously,* That the said agreements be approved and confirmed.

The committee appointed to consider the remonstrance of citizens of Harrisburg, against the change of the tow path, reported:

That they have considered the subject referred to them, and examined the ground in company with some of the petitioners, and

are unanimously of the opinion, that to grant the request of the petitioners and to establish the towing path permanently on the Harrisburg side of the canal, would subject the inhabitants to great and lasting inconvenience and embarrassment, in consequence of being cut off and deprived of every opportunity of erecting warehouses, or the means of trading or depositing the products of the upper country or merchandize necessarily connected with the convenience and commerce of the people, residing at the seat of government. They therefore offer the following resolution:

That it would be inexpedient to grant the prayer of the petitioners.

The said report and resolution having been read, were unanimously agreed to.

The committee to whom was referred the letter of William A. Lloyd, of Northumberland, made report:

That from inquiry of both the engineers, on the two branches of the Susquehanna, whose works unite at Northumberland, they find that the basin at the junction will be common to both canals; that it would be nothing more on either branch than a widening of the canal to about 100 feet, sufficient for a boat to turn in; that the nature of the ground is such, that the expense of a canal 100 feet wide, will cost little more than one 40 feet wide and that the basin on the north branch is to be of the same width as that on the west, and that from all they can learn it is their opinion that the location has been judicious, and requires no interference of the board. They therefore offer the following resolution.

Resolved, That the committee be discharged from any further consideration of the subject.

The same committee, to whom was also referred the subject of constructing an independent set of locks to each canal, to enter the pool in the West Branch of the Susquehanna, beg leave to report:

That they can see no good reason at the present time for a double set of locks at this point, inasmuch as all the trade that would pass through both sets, must pass one tow bridge and a single set of locks below, and below the Juniata junction with the Susquehanna canal, the whole western trade in addition to that of both branches of the Susquehanna, must pass through a single set of locks on the eastern division. And as the dispensing with one set of locks would relieve the state of a considerable item of expense, therefore

Resolved, That the outlet locks upon the North Branch canal at Northumberland, be dispensed with, and that the engineer upon said North Branch division, be directed to terminate his line at the junction with the West Branch division.

The said report and resolutions having been read, were unanimously agreed to.

Adjourned to 9 o'clock, to-morrow morning.

*Harrisburg, December 10, 1828.*

9 A. M.—The board met. Present all the members of the board except Mr. Sergeant.

Mr. Clarke, acting commissioner, laid before the board a report on the Juniata division, accompanied by documents.

The secretary presented a report to the Governor prepared according to the directions of the board. The same having been read and discussed,

*Ordered,* That the secretary be directed to have a fair copy made out and presented to the board, as early as practicable.

The following communication from Abner Lacock, acting commissioner on the western division, was read.

To the board of canal commissioners,

GENTLEMEN:

It will be recollected that at the last meeting of the board, application was made by Alonzo Livermore, engineer, D. K. Bishop, assistant, and W. P. Stuart, for the privilege of using the surplus water of the river at the dam erecting near Blairsville. This the board refused to grant, and the result was communicated to those concerned soon after my return. On a subsequent visit to Blairsville, I discovered a saw mill in course of erection, and a culvert constructed, over which it was necessary to throw a heavy guard bank to protect the dam and guard lock from the floods of the river. This was done without my knowledge, advice or consent. It is proper to observe, that the purchase of the land in question was made by the company some time after the dam had been located by the special direction of the board who met at that place. Another outlet has been made and a saw mill is nearly completed by Messrs. Leach and Trucka, at dam No. 1, on the Kiskeminetas.

There is much surplus water in this stream, that could be advantageously applied to hydraulic purposes. This water belongs to the public, but if thrown upon the lands of an individual, he has a right to its use, provided he throws it into its original channel upon his own ground, without injury to the public. But it appears to me that no step should have been taken to apply the water to private use, without the consent of the state, and an agreement as to an equivalent for its use. It is true that should the guard banks have been erected, and no device made for conveying the water through them to the works below, it would have been very expensive and perilous to have done it after the doors were filled with water. Thus situated and believing the erection of the culverts through the guard banks, indispensable to the public interest as connected with the future sale of water rights, I should not, had I possessed the power, have directed their demolition. If however the board should think it advisable to prevent the use of the water thus designed to be drawn off, they will direct the mouth of the culverts to be filled with embankment, and the object will be effected. Having stated all the facts that have come to my knowl-



edge, the subject is respectfully submitted to the board for their consideration and direction.

(Signed) A. LACOCK, A. C.

December 10, 1828.

On motion that the said communication be referred to a committee, Messrs. Scott, Hammond and Clarke, were named as such committee.

*Resolved unanimously.* That the acting commissioners be a committee to digest, and present to the board, a list of tolls on the finished portions of the canals; and also to consider and report what salaries it is expedient to allow to lock-keepers and collectors.

*Resolved unanimously.* That the various applications for appointment as collectors and lock-keepers, be referred to a committee.

Messrs. Clarke, Hammond and Mowry, were named as such committee.

*Resolved unanimously.* That the acting commissioners and superintendents on the lines of canal respectively, be authorised to lease or let from year to year, such lands, houses, and improvements as are the property of the commonwealth, lying adjacent to such canals.

*Resolved unanimously.* That the appointment of Theophilus Williams, as principal assistant engineer, under Nathan S. Roberts, on the 16th. June 1828, be now confirmed, and that he be allowed for his services at the rate of \$3 00 per day from the above date.

A communication from the senators and representatives, from the county of Lancaster, in regard to the location of the eastern division through Marietta, was read; and was referred together with the petition on that subject, to a committee.

Adjourned to 3 o'clock, this afternoon.

Harrisburg, December 10, 1828.

3 P. M.—The board met.

Present as this morning except Messrs. Phillips and Roberts.

The committee to whom was referred the communication of Abner Lacock, acting commissioner of the western division, made report:

That they had the subject under consideration, and are of opinion that it is unnecessary at this time, to decide upon the rights of individuals owning or possessing sites fit to be occupied by hydraulic machinery. Your committee are clearly of opinion that all the surplus waters raised in the construction of canals and slack water navigation, belong exclusively to the commonwealth, and cannot be appropriated to the use of individuals or companies without her consent.

In relation to the hydraulic works mentioned in the statement of General Lacock, it appears that they were erected after the board had refused their assent, and after the decision of the board had

been communicated to Messrs. Livermore and Bishop, by General Lacock.

Your committee therefore, as well to protect the interests of the commonwealth as to rid the board of the odium of retaining in their service men whose conduct (whatever the motive) indicates a disregard to the reputation and opinion of the board, and the public interest, recommend the adoption of the following resolutions.

*Resolved*, That Alonzo Livermore an engineer, and D. K. Bishop an assistant engineer in the service of the board, be dismissed the service.

*Resolved*, That General Lacock, the acting commissioner, be authorised and required to stop or fill up the culverts constructed to draw water from the dam at Blairsville, and at dam No. 1 on the Kiskeminetas.

The said report and resolutions having been read, Mr. Mowry moved their postponement for the purpose of introducing the following preamble and resolutions.

Whereas it appears from a report of the acting commissioner on the Conemaugh division of the Pennsylvania canal, that Alonzo Livermore an engineer, and D. K. Bishop, an assistant engineer in the service of the state, together with William P. Lamett, made application to the board of canal commissioners, for the surplus water in the dam at Blairsville, for which they were willing to pay whatever the board or the state might think proper to ask; and whereas the board was unwilling and felt themselves unauthorised to grant such privilege or make such contract, but referred them to the legislature: And whereas these persons subsequently improved the only practicable opportunity of providing the means of taking such water at any future period, by constructing a culvert for the purpose, across the trunk of the canal, before the banks were made at that place, and have built a saw-mill which they contemplate to drive by the water from said dam, which is going to waste: And whereas it is apparent that they hold themselves to pay the state a just compensation therefor, whenever she shall name her terms: And whereas the improvement thus by them constructed, appears to be calculated for a public benefit, and injurious to no one; nevertheless, as the means of taking the water and the preparations for using it, were provided without authority, and the whole proceeding wrong in principle, Therefore,

*Resolved*, That the board decidedly disapprove of the conduct of Alonzo Livermore, an engineer, and D. K. Bishop, an assistant engineer, in the employment of the state, in availing themselves of the opportunity of taking water from the Blairsville dam, for hydraulic purposes, without authority to do so.

*Resolved*, That the acting commissioner upon the Conemaugh division, be directed to cause the passage through the said culvert, to be immediately stopped, so to remain, till otherwise ordered by authority of the legislature.

On the question of postponement, the yeas were Messrs. Lacock, Montgomery and Mowry, 3.—The nays Messrs. Clarke, Scott and Hammond, 3.—So the motion to postpone was lost.

The question then recurring on the first resolution, the yeas were Messrs. Clarke, Scott and Hammond 3.—The nays Messrs. Lacock, Mowry and Montgomery, 3.—So the resolution was not agreed to:

Mr. Phillips appeared at the board.

The following resolutions were then offered as substitutes for those reported by the committee:

*Resolved*, That the board highly disapprove of the conduct of Alonzo Livermore and D. K. Bishop, in relation to the dam at Blairsville, and but for a belief that it has proceeded from ignorance of their professional and official obligations, rather than from deliberate intention to violate the directions and policy of the board, would promptly discharge them from the service of the commonwealth,

*Resolved*, That any future interference with, or speculations in the public works, by any engineer or assistant engineer, will be promptly visited with the severest discipline.

*Resolved*, That in all such cases, the acting commissioner or superintendent, be empowered when the fact comes to his knowledge, to discharge such officer from the line.

*Resolved*, That a copy of the foregoing resolutions be furnished to the parties concerned.

The question being called for on the first resolution, Mr. Scott moved to strike out all after the word "Bishop," and insert the words "*and that they be dismissed from the public service.*"

On this motion the yeas were Messrs. Scott and Clarke, 2.—Nays Messrs. Lacock, Hammond, Montgomery, Philips and Mowry. So the motion was lost.

The question being then taken on the resolutions as offered, they were unanimously adopted.

A communication from Ner Middleswarth, esq. and other members of the legislature, in regard to a communication between the West Branch division and the river opposite Lewisburg, was read, and it was

*Resolved*, That the board will recommend the subject to the notice of the legislature.

*Resolved unanimously*, That when the board adjourn, they will adjourn to meet at this place on the 25th of March next, unless informed by notice from the president, that it is expedient to hold the meeting at an earlier or later period.

A report from Abner Lacock, acting commissioner upon the Western division, accompanied by documents, was read.

Adjourned to 9 o'clock, to-morrow morning.

Harrisburg, December 11, 1828.

9 A. M.—The board met.

Present, Mr. Montgomery, president, Messrs. Scott, Roberts, Lacock, Mowry, Clarke, Hammond and Philips.

The secretary laid before the board, a report prepared for transmission to the Governor. The same having been read and agreed to,

*Resolved unanimously*, That it be signed by the president and secretary, and sent with the several documents referred to therein, to his excellency the Governor.

The committee to whom was referred, the subject of tolls, collectors and lock tenders, made the following report:

That from the best consideration they have been able to bestow, they have been led to recommend the following, as the most proper rates of toll, to be charged upon the transportation of boats, produce, and other articles of carriage, upon the Pennsylvania canal, viz:

	cts. m.
On flour, salted beef, pork and fish, butter, and cheese, beer and cider, per ton per mile,	1 5
On salt,	1 5
On gypsum,	1 5
On brick, sand, lime, stone unwrought or rough hewn, clay, earth, leached ashes, manure and iron ore, per ton per mile	0 5
On marble in blocks, unwrought or rough hewn,	1 0
On marble wrought and polished,	2 0
On castings blooms, and anchovies,	1 5
On bar, rolled or slit iron,	2 0
On household furniture,	1 5
On furs and peltry, (except deer, buffalo and moose skins)	3 0
On deer, buffalo and moose skins,	1 5
On cotton,	1 5
On pot and pearl ashes, charcoal, pig iron and broken castings,	1 0
On mineral coal,	0 8
On slate and tile for roofing,	1 0
On timber squared and round, if carried in boats or scows, per 100 cubic feet per mile,	1 0
The same if carried in rafts,	1 5
On hemp and tobacco, going eastward per ton per mile,	1 0
On staves and heading, if carried in boats per ton per mile,	0 5
The same if transported in rafts,	1 0
On boards, plank and scantling, reduced to inch measure, and all siding lath, and other sawed stuff, less than one inch thick, per M feet per mile if conveyed in boats or scows,	1 0
The same if transported in rafts per M feet per mile,	2 0
On shingles, if conveyed in boats, per. M per mile,	0 2
The same if in rafts,	0 4
On split posts and rails, for fencing,	4 0
The same if in rafts,	8 0
On Wood for fuel, per cord per mile if in boats	1 0

	cts. m.
The same if in rafts, per cord per mile,	2 0
On tan bark per cord per mile, if in boats,	1 5
The same if on rafts per cord per mile.	2 0
On hoop poles and split lath per ton per mile,	0 5
On carts, wagons, sleighs, ploughs, and agricultural implements and mechanics' tools necessary for the owner's individual use, when accompanied by the owners emigrating, per ton per mile,	1 0
On all articles not enumerated, passing north or west, per ton per mile,	3 0
On all articles not enumerated, passing southward and eastward per ton per mile,	1 5
On all agricultural productions not particularly specified, per ton per mile,	1 5

*Explanation.* Cattle, horses and all other live stock, the raw hides of domestic animals, are to be considered as included within the term "agricultural productions," and each horse is to be estimated at 6 cwt.

On boats made and used chiefly for the transportation of property, per mile, 2 0

On boats used chiefly for the transportation of persons 20 cents per mile, or 6 cents per mile on the boat, and two mills per mile on each passenger over eight years of age, at the election of the proprietors: Provided, they render such satisfactory accounts of the number of passengers, as may be required, and make such election when their boats commence business for the season.

On each passenger transported in freight boats, and over 12 years of age, per mile, 0 2

For passing outlet locks at Middletown, except such craft as have come or are going immediately on the Pennsylvania canal.

On every loaded ark, \$ 1 00

Empty do 50

On every loaded boat, 75

Empty do 50

Lumber of all kinds, in rafts or platforms, at the rate per M feet board measure, of 08

The committee further recommend, that the receivers of tolls, shall be appointed during the pleasure of the board, at a salary of forty dollars a month, with a house for each to live in, rent free, in which his office shall be kept, or a sum of \$ 200 a year in lieu thereof. That the said receivers shall be required to give bond with freehold security to the satisfaction of the treasurer of the canal board, in the sum of \$ 10,000 each, for the faithful discharge of all the duties of their offices, and strictly account for all moneys which they may receive as tolls. That each receiver shall be required to deposit his collections weekly, in such bank as shall be directed by the state treasurer, if within the distance of ten miles, and monthly, if at a greater distance, and settle his accounts quarterly, with the auditor general or such agent as he may appoint for

the purpose, default of which in any case, shall be considered sufficient cause for removal.

That supervisors, of the finished portions of canal shall receive at the rate \$2 50 a day, for the time they may be necessarily and actually employed in discharging the duties of their office.

They also recommend, that lock tenders shall receive for tending a single lock, a salary of ten dollars a month each, and for two or more locks, where combined or so adjacent to each other, as to render it practicable for one man to tend both or all of them \$12 50 a month, with a house to live in, rent free.

*Resolved*, That the foregoing rates of toll, and of compensation to collectors, supervisors and lock tenders be adopted, till otherwise ordered.

The foregoing report and resolutions having been severally read and considered, it appeared that they were unanimously adopted.

The committee to whom was referred the petition from Marietta, &c. made report.

That from inquiries made of the locating engineer, Mr. Kneass, and explanations given by him, and from the fact that Mr. Wilson, on a former occasion, located upon the same ground and upon the same plan, they are led to believe that it is the most judicious that could be made. It appears that throwing the level lower down opposite the town would occasion more expense of embankment, and more difficulty in constructing bridges, and that taking Chickey's creek into the canal would occasion a dam and guard lock which would be more expensive than an aqueduct, and must render the navigation more unpleasant if not more unsafe.

Judge Rawle, a third engineer has also been on this ground, and approved of the location. The committee are aware that if errors are committed in locating a canal, the proper time to correct them, is before the work is commenced; but when three different engineers agree in a location, none of whom having any interest to bias them improperly, there ought to be much stronger grounds for distrust, than appear to exist in this case, to warrant a special view of the board, at a distance of 20 miles from its sitting. And inasmuch as it appears that the location through Marietta, is not yet put under contract, and probably nothing will be done at the aqueduct, before the next meeting of the board, therefore *Resolved*, That this subject be postponed until the board meet again. The report having been read was unanimously adopted.

Mr. Clarke from the committee to whom was referred the several applications for appointment as lock-keepers, collectors, &c. made report. That having examined the subject together with the recommendations of the several applicants, they are of opinion that it is not necessary at present to make any further apportionment of supervisors. But that in addition to the collectors and lock-keepers heretofore appointed, the following persons who have been recommended, should be appointed, viz:

Thomas C. Reed of Gettysburg, Adams county to be collector at Middletown,

Thomas Johnston of Blairsville, to be collector at that place.

Jonas Shartil to be lock-keeper at Updegroves on the eastern division.

On the question shall this report be agreed to, and the appointments therein named be made, the yeas were Messrs. Scott, Hammond, Mowry, Roberts, Clarke and Montgomery 6. Nay Mr. Phillips, 1. So the appointments were made.

*Resolved unanimously*, That the acting commissioner of the western division, and the superintendent of the eastern division, be authorised to make such temporary appointments of lock-keepers as may be necessary before the next session of the board.

*Resolved unanimously*, That the secretary be directed to advertise for contract the road formation of twenty miles at each end of the Pennsylvania railway, as soon as it can conveniently be done.

*Resolved unanimously*, That William Wilson, Esq. be directed to take charge of the Pennsylvania railway as superintendent until some appointment to that office shall be made by the board; and that he be authorised from monies in his hands as superintendent of the eastern division to pay the expenses incurred in laying-out, and the sum necessary for carrying on the work.

An account of John Wilson, engineer, showing the monies expended by him in the survey and location of the Pennsylvania railway during the present season, amounting to \$6041 49 was laid before the board.

The said account having been examined, *Resolved unanimously*, That it be allowed and confirmed.

*Resolved unanimously*, That it was, and is hereby declared to have been the intention of the board when fixing the salaries of principal engineers on the 5th of June last, that such salaries should commence from the date of the passage of the act of 10th April, 1828; or from the date subsequent thereto, when such engineers commenced their service.

Mr. Wilson presented for confirmation an agreement with Mr. Hoyer for damages. On the question of confirming the yeas were Messrs. Roberts, Hammond, Phillips, Mowry and Montgomery—6. Nays Messrs. Clarke and Scott—2.

So the agreement was confirmed.

The following preamble and resolution having been offered by Mr. Mowry, were unanimously agreed to.

Whereas on an application of Anderson, M'Namee and Co. for a re-measurement of the work done on section five of the eastern division, the acting commissioner was directed to procure a re-measurement. And whereas the acting commissioner reported at the next meeting of the board, that on a remeasurement, in conformity with said resolution, the engineer found an error had been committed prejudicial to the contractors to the amount of \$230 60, Therefore.

*Resolved*, That the superintendent of the eastern division, be directed to pay said amount to the said Anderson, M'Namee and Co.

*Resolved unanimously*, That the acting commissioner of the western division, be authorised to construct the locks on the line

of canal from Blairsville to Johnstown, either of wood or stone as he shall deem most advisable.

*Resolved unanimously,* That Henry Minshall be appointed lock-keeper, for the locks at Harrisburg.

The following resolution having been offered by Mr. Mowry:

*Resolved* That William Wilson, superintendent be authorised to contract with, and pay the heirs of Judge Bucher, deceased, \$150, as full compensation for all damage done the property of the said heirs on the eastern division. The yeas were Messrs. Scott, Hammond, Mowry, Montgomery—4. Nays Messrs. Phillips and Clarke—2.

So the resolution was agreed to.

Mr. Lacock presented for confirmation an agreement with Robert Perks, to pay for damages caused by overflowing his land, \$350, and with George Hank for damages \$110.

*Resolved unanimously,* That the said agreements be approved and confirmed.

Adjourned to 7 o'clock, to-morrow morning.

*Harrisburg, December 12, 1828.*

7 P. M.—The board met.

Present, Messrs. Scott, Lacock, Clarke, Phillips and Mowry.

Mr. Lacock presented for confirmation the account of N. S. Roberts, an engineer on the portage survey's, which having been examined,

*Resolved unanimously,* That the said accounts be approved and confirmed.

Mr. Philips exhibited an account of his expenses as a member of the board, which was approved and directed to be paid.

Adjourned to meet at Harrisburg on the 25th March next, at 4 o'clock P. M.



*Philadelphia, December 30, 1828.*

SIR,

Agreeably to a resolution of the board of directors of the Pennsylvania institution for the deaf and dumb, I have the honor to enclose the annual report of said institution, which have the goodness to present to the House of Representatives.

Very respectfully,

Your obedient servant,

GEORGE W. TOLAND, Sec'y.

NEL MIDDLESWARTH, Esq. Speaker, &c.

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*To the Honorable the Senate and House of Representatives of the commonwealth of Pennsylvania, in general assembly met.*

The directors of the Pennsylvania institution for the deaf and dumb, respectfully submit the annual report, required by the 7th article of their act of incorporation.

The receipts and expenditures of the institution, for the year ending the twentieth of December 1828, are exhibited in the accounts of the treasurer hereto annexed marked A, which have been examined and approved by the committee of accounts.

During the official year, twenty-seven pupils have left the institution, and sixteen have been received. The present number is sixty-eight, being forty-two males and twenty-six females. (Admissions for twelve have been issued, some of whom are daily expected in Philadelphia) The annexed document marked B, shows their residences, the manner in which they are supported, &c.

Of the whole number, thirty-nine are from Pennsylvania, supported by the bounty of the commonwealth; three are from New Jersey, supported by that state; two from Maryland are supported by that state; eleven are supported wholly, or in part by the institution; the remaining thirteen are paid for by their friends.

Since our last report an act has been passed by the legislature of Maryland, honourable alike to that body and to the reputation and confidence established by this institution, which makes an appropriation for the education of the deaf and dumb of that state in this institution, at the same rate for each pupil, as is paid for the pupils supported by this state.

Notwithstanding the exertions of the board and the economy exercised in every department of the institution, its funds are still very inadequate to the benevolent objects of its foundation.

The act of Assembly for its endowment is about expiring. Upon the continuance of the legislative aid depends the duration of the institution, whose benefits have been so long and so clearly displayed as to need no further illustration. A memorial has been presented to your honorable body, for the renewal of this grant, and the board feel every confidence in the acquiescence of the legislature in the request of the memorialists.

Since our last report Mr. George Comstock has from ill health resigned his situation as a teacher in the institution. The two pupils who were retained as monitors have also left it; one has been placed as an apprentice with a respectable printer of the city, the other has returned to his friends.

To supply these vacancies, the board have engaged, as a teacher Mr. George S. Whitehill, a native of Pennsylvania, and a graduate of Dickinson College, who furnished the most respectable testimonials of ability and good character. No other material change has occurred since the last report.

The board are gratified again to express their entire satisfaction with the attention and ability of the principal and his assistants.

The manufactures are continued with advantage to the pupils. The domestic arrangement of the house is still under the charge of Mary Cowgill, who has superintended it from its first establishment, and whose fidelity is undiminished.

The directors in conclusion are bound to acknowledge the divine favour extended toward the inmates of the institution, in blessing the means of instruction, and preserving the harmony and health of the family.

By order of the board.

WM. WHITE, *President*.

GEORGE W. TOLAND, *Sec'y*.

*Philadelphia, December 30, 1828.*

## A

*For moneys received and paid from December 21, 1827, to December 21, 1828.*

The Pennsylvania institution for the deaf and dumb, in account with John Bacon, treasurer.

1828

DR.

Dec 21 To cash paid to this date, on the following accounts, viz:

Family expenses, 4,311 03

Incidental expenses, including interest on moneys borrowed, 1,309 14

Salaries of matron, principal, five assistant teachers, steward and superintendent of manufactures. 4,373 83

Private pay pupils, advanced for clothing &c. to be refunded by their parents or guardians, 98 73

New building, improvements, 515 10

Manufactures, raw materials &c. 2,080 98

Moneys borrowed temporarily 5,000

# DEAF AND DUMB REPORT.

329

Moneys borrowed temporarily	5,000	
Steward, balance in his hands		
for petty family expenses,	10 23	
		17,599 04
Balance in the hands of the treasurer		1,528 73
		<hr/> 19,129 77

Cr.

1827-

Dec. 21, By balance in the hands of the treasurer,	1,068 70
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1828

Dec. 21 By cash received to this date on the following accounts, viz:	
Annual contributions,	286
Donations,	136 33
Life subscriptions,	60
Legacies	
John Grandom,	5,000
Daniel Sutter,	100

5,100

Less collateral inheritance duty 127 50

4,972 50

John S. Brown, of Chambersburg,	300
	<hr/> 5272 50

Loan at 5 per cent interest, for new buildings,	200
Private pay pupils,	2,337 44
Commonwealth of Pennsylvania, for support and tuition of indigent pupils,	7,459 28
State of New Jersey, ditto,	402 41
Manufactured goods, sold,	1,905 11

18,059 07

19,129 77

1828

Dec. 21 By balance brought down,	1,528 73
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E. E. Philadelphia, Dec. 21, 1828.

JOHN BACON,  
Treasurer.

Examined and found to be correct, Philadelphia, Dec. 23, 1828.

JOHN VAUGHAN,  
ALEXANDER HENRY,  
Committee of accounts.

## B

*List of pupils supported by the commonwealth of Pennsylvania, resident in the Pennsylvania institution for the deaf and dumb, on the 21st of December, 1828.*

Names.	Where from.	When admitted
1 Joab Capron,	Susquehanna county,	1824, Dec. 15.
2 Abigail Richards,	Bradford	1825 Feb 29.
3 Cyrus Morse	Susquehanna	1824 Dec 15
4 Anna Baker,	Berks	1825 May 25
5 Elizabeth Horton,	Wayne	Sept 26
6 Mary J. Histed	Erie	Oct 3
7 Sally A. Histed,	do	do
8 Diana C. Whitten,	do	do
9 Nathan George,	Lehigh	Oct 5
10 William Longacre,	Union	Oct 8
11 Peter Martin,	York	Oct 24
12 Arthur Kelly, jr.	Luzerne	Oct 7
13 William M <sup>c</sup> Chiskey,	Luzerne	Oct 7
14 Andrew Carlin,	Philadelphia	1826 Mar 24
15 Daniel Nowlan,	do	Ap'l 11
16 Mary D. Zinser,	do	Oct 6
17 Thomas S. Roberts,	do	Oct 6
18 Henry Stehman,	Lancaster	Oct 9
19 Eliza Peiffer,	Philadelphia	Oct 9
20 Benjamin Paulin,	do	Oct 24
21 Joseph Shipps,	do	Nov 10
22 James Bradley, jr.	do	Nov 20
23 Richard May,	Allegheny	Dec 22
24 Addison Smith,	Adams	1827 Mar 9
25 Rebecca Gough,	Bedford	Aug 28
26 Jane M <sup>c</sup> Gowin,	Allegheny	Sept 23
27 Alexander Kerr,	Greene	Sept 23
28 John Landis,	Westmoreland	Sept 27
29 Edward Gibson,	Philadelphia	Oct 1
30 Polly Hicks,	Bradford	Oct 2
31 James Falls,	Washington	Oct 15
32 Hannah Kirk,	do	June 12
33 Stephen D. Connet,	Pike	Sept 25
34 Caleb G. Merritt,	Chester	Oct 13
35 Mary A. Young,	Philadelphia	Oct 17
36 Martha Jones,	Chester	1828 Oct 24
37 Jesse Wannemaker,	Lehigh	Nov 20
38 Daniel Wannemaker,	do	Nov 20
39 William P. Gunkle,	Philadelphia	Dec 1

*Pupils supported by the state of New Jersey.*

40 Elizabeth Marsh,	Elizabethtown	1828 July 16
41 Nathaniel Brittain,	Monmouth county	Sept 26
42 John Vankirk,	Middlesex	Oct

## Pupils supported by the state of Maryland.

	Names.	Where from.	When admitted.
43	William Workerger,	Baltimore	1828 Sept 27
44	Samuel Adams,	Somerset county	Oct 28

## Pupils supported by the institution wholly or in part.

45	Matilda Bollen,	from Washington county	1827 Nov 15
46	Nancy Coulter,	Washington	Oct 2
	Her father pays towards her support \$50 per annum.		
47	George Cooper,	Philadelphia co.	1828 July 24
	His mother contributes towards his support \$70 per ann.		
48	Charles Leech,	Philadelphia county	1822 Nov 9
49	John Detwiler,	Lancaster	1824 June 17
50	Charles Miller,	York	June 17
51	Christo Vancourt,	Cumberland	July 1
52	Thomas Wilson,	Erie	Aug 6
53	Maria Deraker,	Philadelphia	Dec 1
54	Margaret Reilly,	Lancaster	May 28
55	Albert Newsam, pupil to an engraver in the city, supported by the institution.		

## Pupils supported by their friends.

56	George W. Steinrod,	from Virginia
57	Joseph Saeger,	Pennsylvania,
58	Nathaniel H. Wilson,	Virginia,
59	Joseph Hance,	New Jersey,
60	Matilda Sowers,	Virginia,
61	Susannah Veazey,	Maryland,
62	Christiana Brookes,	New Jersey,
63	Henry Snyder, jr.	Virginia,
64	Robert Gaw, jr.	Virginia,
65	Catharine M'Nutt,	Virginia,
66	Sabilla S. French,	New Jersey,
67	Elizabeth S. Ogden,	Pennsylvania.
68	Elizabeth Wannemaker	

## SUMMARY.

Pennsylvania state pupils,	39
New Jersey do	3
Maryland do	2
Private instruction pupils,	11
Paying pupils,	13
Total,	68

*In the Senate, January 5, 1828.*

The Speaker laid before the Senate the following letter from the Auditor General, and documents which accompanied it,

# AUDITOR GENERAL'S OFFICE,

*January 2d, 1829,*

SIR—I have the honor to transmit copies of the reports of the several banks, prepared in obedience to the directions of the acts of Assembly incorporating the same.

With great respect,

Your ob't servant,

DAVID MANN.

Hon. DANIEL STURGEON,  
*Speaker of the Senate.*

*Report of the state of the BANK OF NORTH AMERICA, on Tuesday the 4th day of November, 1828, transmitted to the Auditor General, in compliance with the requisition of the XVIIth article of the charter of the 21st of March, 1825.*

## Dr. accounts.

Bills discounted	\$ 1,042,171 75
Bills receiveable	3,151 93
Bonds and judgments	30,150
Bonds and mortgages	40,322 83
Stock in turnpikes and bridges	18,036
Do. in canals and navigation	17,100
Do. in bank stock	28,040
Do. in United States 6 per cent	38,228 98
Loans to Chesapeake and Delaware canal, and Schuylkill navigation co.	66,092 50
Sundry securities and personal accounts	73,983 59
Specie	101,708 79
Notes of other banks	60,881 83
Due by other banks	8,051 84
Real estate obtained in payment of debts including the banking house	300,250 18
Suspense account	259 91
Expenses	4,814 29
	<hr/>
	\$ 1,828,244 42

## BANK REPORT.

333

## CR.

Capital paid in	1,000,000
Notes in circulation	244,526 61
Surplus fund and profit and loss	60,963 76
Discount account	21,791 30
Dividends unpaid	4,430
Due the commonwealth, tax on dividends	12,000
Due to other banks	64,978 27
Due to depositors	429,554 48
	<hr/>
	\$ 1,828,244 42

Dividend declared January, 1828, on one million at 2 per cent.

Do. do. July, 1828, on same at 2½ per cent.

*City of Philadelphia, ss.*

Personally appeared before me, one of the Aldermen in and for said city, Henry Hollingsworth, cashier of the bank of North America, who, being duly affirmed according to law, says the above statement is just and true.

H. HOLLINGSWORTH, *Cashier.*

Affirmed and subscribed the 4th day of December, 1828, before me,

WILLIAM MILNOR, *Alderman.*

**PHILADELPHIA BANK, November 3d, 1828,**

## DR.

To amount of capital stock,	1,800,000
do. of notes in circulation	301,176
do. of contingent fund	134,319
do. of dividends unpaid	10,864
do. of discounts	59,032
do. due to other banks	171,503
do. due to depositors	392,171
	<hr/>
	\$2,869,066

## CR.

By amount of bills discounted		1,805,777
of loans outstanding at Washington and Wilkesbarre, secured generally by bonds, mortgages and judgments		174,216
Amount of Subscription to the Chesapeake and Delaware canal		100,000
Loans to the Chesapeake and Delaware canal		50,000
Loan to the Union canal company		20,000
Philadelphia bank stock	\$243,274	
Pennsylvania 5 per cent stock	19,794	
Monongahela bank stock	3,600	
Turmpike stock	500	
		267,168
Amount of Specie on hand	143,346	
Notes of other banks	189,665	
		333,011
Due from other banks		47,915
Banking house and lot		50,000
Amount of real estate		12,739
Amount of expenses		8,240
		32,869,066

*City of Philadelphia.*

Personally appeared before me the subscriber, one of the Aldermen in and for said city, Quintin Campbell, cashier of the Philadelphia bank, who being duly sworn according to law, says the above is a just and true statement from the books of said bank, and subscribed the tenth day of December A. D. 1828.

Q. CAMPBELL, *Cashier.*

A. PETTIT, *Alderman.*

*State of the FARMER'S AND MECHANIC'S BANK, No-*  
*vember 4th, 1828.*

## DR.

To amount of capital	\$1,250,000
Notes in circulation,	341,560
Contingent fund,	81,604
Discounts,	973
Carried forward,	1,674,137



# BANK REPORT.

385

Brought forward,	1,674,137
Dividends unpaid,	43,377
Due to other banks,	181,709
Due to depositors,	589,729

32,488,952

## CR.

By bills discounted and receivable,	1,506,384
Mortgages,	93,453
Judgments	69,916
Domestic bills purchased,	15,000
Pennsylvania canal loan, \$76,536 <sup>11</sup> / <sub>100</sub> , cost	72,600
26 shares, Susquehanna and York borough turnpike road company stock,	9,307
5 shares Downingtown, Ephrata and Harrisburg turnpike road company stock,	500
10 shares Falmouth turnpike road company stock,	500
20 do Centre do do	1,000
10 do Northumberland bridge Co. do	250
50 do Susquehanna bridge at Columbia do	5,000
2 do Bridge over West branch Susquehanna at Lewisburg, stock,	100
50 do Of the Chesapeake and Delaware canal Co. stock,	10,000
Of the loan of \$300,000 of do 6 per cent.	10,000
52 shares of the Union canal company stock,	10,400
Of the 6 per cent. loan of do \$70,000 cost,	72,000
1270 shares of the Schuylkill navigation Co. stock,	63,500
54 shares of the State bank at Camden,	2,700
105 shares of the Farmers' and Mechanics' bank,	5,419
Bonus for renewal of the charter remaining unextinguished,	38,500
Specie, viz:	
Gold	375
Silver & cents	171,902
At the mint	1,203
	<u>173,480</u>
Notes of other banks,	111,925
Due by other banks,	118,717
	<u>230,642</u>
Real estate,	98,301
	<u>32,488,952</u>

## BANK REPORT.

*City of Philadelphia, ss.*

Personally appeared before me the subscriber, one of the aldermen in and for the said city, Henry Kuhl, cashier of the Farmers and Mechanic's bank, who being duly sworn according to law, says the above statement is just and true.

HENRY KUHL, *Cashier.*

Sworn and subscribed December 6, 1828, before me,

A. PETTIT, *Alderman*

*State of the* **COMMERCIAL BANK OF PENNSYLVANIA,**

*November 4th 1828.*

**DR.**

To capital stock		1,000,000
Notes in circulation		193,484
Contingent fund	25,752 18	
Discounts	35,001 84	
		60,754 02
Dividends unpaid		1,190
Amount due commonwealth tax on dividends		3,840
Do. other banks		60,252 81
Do. depositors		266,241 59
		<u>\$ 1,585,762 42</u>

**CR.**

By bills discounted	1,122,590 77
Bonds and mortgages	24,818 50
Chesapeake and Delaware canal stock	5,000
Commercial bank stock	200,000
Specie	64,517 97
Notes of other banks	108,701
Amount due from other banks	16,212 40
Real estate	37,909 66
Expenses	6,012 12
	<u>\$ 1,585,762 42</u>

# BANK REPORT.

337

Dividend declared May 6. 1828, on \$80,000 at 3 pr ct 24,000  
Do. do. Nov. 4th, 1828, on 800,000 at 3 pr ct. 24,000

BENJ. P. SMITH, *Cashier.*

*City of Philadelphia,*

Personally appeared before me, the subscriber one of the aldermen in and for said city, Benjamin P Smith, cashier of the Commercial bank of Pennsylvania, who being duly affirmed according to law, says the above statement is just and true.

BENJ. P. SMITH, *Cashier.*

Affirmed and subscribed the 24th day of November, A. D. 1828.  
before me,

JAMES N. BARKER, *Alderman.*

## State of the MECHANICS' BANK OF THE CITY AND COUNTY OF PHILADELPHIA, November 4th, 18 3.

DR.

To capital paid in	529,330
Notes in circulation	284,783
Profit and loss	73,715 63
Dividends unpaid	1,126 89
Due the commonwealth, tax on dividends, May	1,431 34
Due to other banks in the city	684 09
Due to foreign banks	179,076 83
Collateral security	5,914 36
Due to depositors	316,059 10

\$ 1,392,121 4

Due the commonwealth, tax on dividend, Nov. 1,431 34

By bills and notes discounted	959,827 87
Chesapeake and Delaware canal stock	10,000
Mechanics' bank stock	102,164 76
Specie	110,995 41
Notes of foreign banks	47,478 83
Notes of city banks	49,588 73
Due by foreign banks	10,013 42
Due by city banks	41,896 76
Real estate	4,776 97
Suspense account	8,744 92
Expenses	6,134 07

\$ 1,392,121 24

## BANK REPORT.

Dividend declared May, 1828, on \$397,595 at  $4\frac{1}{2}$  pr ct. 17,891 77

Do. do. Nov. 1828, on \$397,595 at  $4\frac{1}{2}$  pr ct. 17,891 77

*City of Philadelphia,*

Personally appeared before me, the subscriber, one of the aldermen in and for said city, Thomas Fitch, cashier of the Mechanics' bank, who being duly sworn according to law, says the above statement is just and true,

THOMAS FITCH, *Cashier.*

And subscribed the third day of December, A. D. 1828 before me,  
WILLIAM MILNOR, *Alderman,*

*State of the SCHUYLKILL BANK in the city of Philadelphia.*

DR.

Nov 4, 1828.

To capital stock paid in	\$500,000 00
Notes in circulation	322,794 00
Contingent fund	66,246 62
Dividends unpaid	2,897 15
Dividend declared this day	17,500
Due the commonwealth, tax on do	1,400
Due to other banks	201,620 38
Due to depositors	360,811 51

\$1,472,759 66

CR.

By bills discounted	923,981 06
Chesapeake and Delaware canal stock	10,000 00
Schuylkill navigation do	5,000 00
do bank do	17,808 50
Specie	109,584 32
Notes of other banks	264,571 00
Due by other banks	91,905 18
Real estate	49,909 60

\$1,472,759 66

Dividend declared May, 1828, on \$500,000 at 3 per cent.

15,000

Dividend declared November, 1828, on \$500,000 at  $3\frac{1}{2}$  per cent.

17,500

# BANK REPORT.

339

*City of Philadelphia, ss.*

Personally appeared before me the subscriber, one of the aldermen in and for said city, H. J. Lewis, cashier of the Schuylkill bank, who being duly affirmed according to law, says the above statement is just and true.

H. J. LEWIS, *Cashier.*

Signed and subscribed the twentieth day of  
November, A. D. 1828, before me,

S. BADGER, *Alderman.*

*State of the bank of the NORTHERN LIBERTIES, November 3, 1828.*

## DR.

Capital stock paid in	\$200,000 00
Notes in circulation	327,197 00
Contingent fund and profit and loss	79,641 19
Dividends unpaid	11,621 10
Due to commonwealth, tax on dividends	1,600 00
Due to other banks	31,810 60
Due to depositors	362,498 38
	<hr/>
	\$1,014,468 27

Dividend declared May 5, 1828, 5 per cent. on

\$200,000

10,000

Dividend declared Nov. 3, 1828, 5 per cent. on

\$200,000

10,000

## CR.

Bills and notes discounted	732,660 38
Bonds secured by real estate	17,427 80
Stock of this commonwealth (1826)	20,000
Specie	84,218 64
Notes of other banks	96,720 25
Due from other banks	53,441 25
Banking house and lot	10,000
	<hr/>
	\$1,014,468 27

Personally appeared before me one of the justices of the peace, in and for the county of Philadelphia, Robert L. Pitfield, cashier of the bank of the Northern Liberties, who being duly affirmed according to law, says the above statement is just and true, to the best of his knowledge and belief.

R. L. PITFIELD, *Cashier.*

Affirmed and subscribed before me, December 17, 1828.

JOHN GOODMAN.

*State of the SOUTHWARK BANK, in the county of Philadelphia, November 4, 1828.*

DR.

To capital stock paid in	249,630
Notes in circulation	238.7 5
Contingent fund	12,946 45
Dividends unpaid, including this day	12,965
Due to the commonwealth, tax on dividends	1,800
Due to other banks	37,090 20
Due to depositors	219,263 55

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\$77,556 00

By bills discounted	635,404 35
Specie	96,223 19
Notes of other banks	\$34,268 77
Due by other banks	6,659 69— 40,928 46

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\$77,556 00

Dividends declared May 6, 1828, on \$250,000 at  
4½ per centum 11,250  
Dividends declared Nov. 4, 1828, on \$250,000 at  
5 per centum 12,500—23,750  
*E. E. Southwark bank, Philadelphia, Dec. 5, 1828.*

J. S. SMITH, jr. *Cashier.*

*County of Philadelphia, ss.*

Personally appeared before me the subscriber, one of the justices of the peace, in and for the county of Philadelphia, J. S. Smith, jr. cashier of the Southwark bank in the county of Philadelphia, who being duly affirmed according to law, says the above statement is just and true.

J. S. SMITH, Jr. *Cashier.*

Affirmed and subscribed the 5th day of December, 1828, before me,  
J. WALMER, J. P.

*State of the bank of GERMANTOWN, November 4, 1828.*

The bank is indebted	
Capital paid in,	129,500
Notes in circulation,	61,367
Contingent fund,	24,888 12
Dividends unpaid	665 75
now declared	3,885 00
	<hr/> 4,550 75
Due commonwealth,	621 60
Due to other banks,	2,035 07
Due to depositors,	88,777 15

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\$311,439 99

The bank is creditor

Bills and notes discounted,	251,095	26
Judgments,	9,643	06
Mortgages,	11,575	00
Debts personally guaranteed	967	93
Stocks in Chesapeake and Delaware canal	1000	
Flat-rock bridge	60	
	<hr/>	1,060 00
Specie	22,808	53
Notes of other banks and checks	1,437	67
Due of other banks	5,574	54
Real estate	6,910	00
Expenses	368	00
	<hr/>	<hr/>
	\$311,439	99

*Bank of Germantown, Tuesday, Nov. 4, 1828. E. E.*

JOHN F. WATSON, *Cashier.*

*Philadelphia County, ss.*

Personally appeared before me the subscriber, one of the justices of the peace in and for the said county, John F. Watson, cashier of the Bank of Germantown, who being duly sworn according to law, says the foregoing statement is just and true.

JOHN F. WATSON, *Cashier.*

Sworn and subscribed the first day of December, 1828.

JACOB SOMMER, J. P.

*Statement of the KENSINGTON BANK, in the county of Philadelphia, Nov. 4th. 1828.*

DR.

To capital paid in	92,740	00
Notes in circulation	137,315	00
Contingent fund	14,022	66
Dividends unpaid	4,825	00
Due to the commonwealth, tax on dividends	695	10
Due to other banks	14,630	12
Due to depositors	101,754	14
	<hr/>	<hr/>
	\$365,982	12

## BANK REPORT.

CR.

By bil's discounted	282,235 68
Bonds,	
Mortgages,	
Judgments,	
Stock,	
Specie,	36,743 51
Notes of other banks,	17,308 62
Due by other banks,	24,705 81
Real estate,	3,548 50
Expenses,	850 00
	<hr/>
	<u>\$365,982 12</u>

Dividend declared May 1828, on \$90,040 at 4½ per cent. 4,051 80

Dividend declared November, 1828, on 92,740 at 5 per cent. 4,637 00

*County of Philadelphia, ss.*

Personally appeared before me the subscriber, one of the justices of the peace in and for the said county, Charles Keen, cashier of the "Kensington bank in the county of Philadelphia," who being duly sworn according to law, says the above statement is just and true.

CHARLES KEEN, *Cashier.*

Sworn and subscribed the sixth day of December, A. D. 1828, before me,  
ISAAC BOILEAU.

*State of the BANK OF PENN TOWNSHIP, Nov. 4th, 1828.*

DR.

To capital paid in	99,910 00
Notes in circulation	112,985 00
Contingent fund	500 00
Dividend declared this day	1,998 20
Due commonwealth, tax on dividend	109 85
Due to other banks	12,156 91
Due to depositors	100 344 77
	<hr/>
	<u>\$328,154 73</u>

CR.

By bills discounted	229,142 01
Specie	47,723 22
Notes of other banks	30,605 81
Due by other banks	16,671 90
Fixtures of banking house, &c.	3,911 79
	<hr/>
	<u>\$328, 54 73</u>



# BANK REPORT.

343

Dividend declared Nov. 4th, 1828 on \$99,910  
at 2 per cent.

1998 20

*Philadelphia County, ss.*

Personally appeared before me the subscriber, one of the justices of the peace in and for said county, Jacob Frick, cashier of the bank of Penn Township in the county of Philadelphia, who being duly sworn according to law says the above statement is just and true.

JACOB FRICK, *Cashier.*

Sworn and subscribed the 25th day of November, A. D. 1828.  
before me,

C. SOUDER.

*State of the HARRISBURG BANK, November 4, 1828.*

DR.

To capital paid in	158,525 00
Notes in circulation	594,315 94
Dividends unpaid, including the one declared this day	8,054 96
Due to the commonwealth, tax on dividends	1,014 56
Due to other banks	60,273 18
Due to depositors	240,967 95
Contingent fund	14,138 86
	<hr/>
	\$1,077,290 45

CR.

By bills discounted	428,463 45
Bonds	15,949 86
Loan to commonwealth	50,000 00
Stock in the Harrisburg bridge	360 00
Specie	112,191 50
Notes of other banks	56,601 99
Due by other banks	368,554 19
Real estate	45,169 46
	<hr/>
	\$1,077 290 45

Dividend declared May 6, 1828, on \$158,525 at  
4 per cent.

6,341 00

Dividend declared Nov. 4, 1828, on \$158,525 at  
4 per cent.

6,341 00

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\$12,682 00

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*Dauphin county, ss.*

Personally appeared before me the subscriber, one of the justices of the peace, in and for said county, John Forster, cashier of the

## BANK REPORT.

Harrisburg bank, who being duly sworn according to law, says the above statement is just and true.

JOHN FORSTER, *Cashier.*

Sworn and subscribed the 18th day of December, A. D. 1828,  
before me,

WILLIAM GRAYDON.

*State of the bank of PITTSBURG, November 4, 1828.*

DR.

To capital paid in	346,155 50
Notes in circulation	390,790 00
Contingent fund	62,153 76
Dividends unpaid	6,644 80
Dividends declared this day	10,364 10
Due to commonwealth, tax on dividends	1,658 25
Due to other banks	14,536 60
Due to depositors	220,843 01
	<hr/>
	\$1,053,146 02

CR.

By bills discounted	703,393 68
Bills of exchange	60,848 58
Judgments	7,963 43
Stock of the city of Pittsburg	9,200 00
Specie	29,391 44
Notes of other banks	85,898 30
Due by other banks	130,303 79
Real estate	5,282 04
Due by acting canal commissioners, for which we hold their bills on treasurer of canal fund	20,862 75
	<hr/>
	\$1, 053,146 02

Dividend declared May 6, 1828, on \$345,470 at 3 per centum	10,364 10
Dividend declared Nov. 4, 1828, on \$345,470 at 3 per centum	10,364 10
	<hr/>
	\$20,728 20

*City of Pittsburg, ss.*

Personally appeared before me the subscriber, one of the aldermen in and for said city, Alexander Johnston, jr cashier of the bank of Pittsburg, who being duly sworn according to law, says the above statement is just and true.

ALEX'R. JOHNSTON, jr.

Sworn and subscribed this 4th day of December, A. D. 1828, before me,

D. S. SCULLY.

# BANK REPORT.

345

*State of the FARMER'S BANK OF LANCASTER, November 4th, 1828.*

To capital paid in	400,000 00
Notes in circulation	181,138 00
Contingent fund	1,813 73
Dividends unpaid	11,045 44
Due to commonwealth for tax on dividends	1,245 52
Due to other banks	12,719 60
Due to depositors	111,979 32

\$719,941 61

By bills discounted	494,172 86
Bonds	2,766 50
Columbia bridge company stock 63 shares	4,471 25
Conestoga navigation co. 60	3,000 00
Farmers' bank stock 361	18,050 00
Lancaster, Elizabeth and Middletown turnpike road stock 35 shares	2,439 00
Lancaster county commissioners' order on the treasurer	3,225 00
Loan to the commonwealth	25,000 00
United States stock	30,000 00
Specie	56,487 49
Notes of other banks	20,730 00
Due from other banks	20,016 13
Real estate	39,360 25
Expenses	223 13

\$719,941 61

Dividends declared in May 1828, on \$596,500 at 2 per cent 7,930  
Dividends declared in Nov. 1828, on \$381,950 at 2 per cent 7,639

Amount of dividends during the preceding, ending with the first Monday of November. \$15,569

*City of Lancaster, ss.*

Personally appeared before me the subscriber, one of the aldermen in and for said city, John Eberman, cashier of the Farmer's bank of Lancaster, who being duly affirmed according to law, says the above statement is just and true.

JOHN EBERMAN, *Cashier.*

Affirmed and subscribed the 28th day of November, A. D. 1828.  
before me,

GEORGE LOUIS MAYER.

*State of the LANCASTER BANK, November 3d, 1828.*

## DR.

To capital stock	124,235 00
Notes in circulation	140,545 00
Dividends unpaid	6,556 26
Surplus fund	11,860 45
Due commonwealth, tax on dividends	410 50
Sundry banks	4,587 06
Depositors	30,423 76
	<hr/>
	<u>\$328,618 03</u>

## CR.

By bills discounted	201,501 07
Stock notes	1,100 00
Bonds and mortgages	13,160 00
Real estate	23,319 04
Lancaster bank stock	22,220 00
Farmers' bank stock	4,800 00
Conestoga navigation stock	1,500 00
Amount due from sundry banks	10,875 37
Cash, viz. specie	20,250 55
Notes of other banks	29,892 00
	<hr/>
	<u>\$328,618 03</u>

**Rate and amount of dividends declared for the last year.**

1828, May 5th, a dividend of 55 cents per share, declared on 4,243 shares of stock amounting to \$2,333 65  
 November 3d, a dividend of 68 cents per share, declared on 4,114 shares stock, amounting to \$2,797 52

**JAMES EVANS, Cashier.**

*City of Lancaster, ss.*

James Evans, cashier of the Lancaster bank, being duly sworn, says that the above account current, exhibiting a statement of the affairs of the said Lancaster bank, as they stood on the first Monday in November, 1828:

Sworn and subscribed before me this 27th November, 1828.

**D. MOORE.**

# BANK REPORT.

347

*State of the COLUMBIA BRIDGE COMPANY, November 4, 1828.*

To capital stock		395,000 00
Notes of the old bridge company in circulation	8,871 36	
Notes of the Columbia bridge company in circulation	136,100 00—	139,971 86
Contingent fund		1,130 87
Dividends, old bridge company unpaid	180 00	
Dividends Columbia bridge company unpaid, including the one declared this day	10,691 50—	10,871 50
Due commonwealth, tax on dividends		1,047 13
Due to other banks		20,404 66
Due to depositors		31,873 29
		<u>3600,298 81</u>

By bridge cost	\$231,922 97	
Bridge repairs previous to charter	5,610 86—	237,533 83
Bills discounted	142,357 30	
Bonds and old notes	16,419 60	
Mortgage	7,760 00—	167,536 90
Stock United States	88,709 36	
do of this bank	16,109 21—	104,818 57
Specie	45,174 57	
Notes of other banks	8,778 08	
Due by other banks	19,147 05—	73,099 70
Real estate, banking house	12,000 00	
Taken in payment for debts previous to charter	5,309 81—	17,309 81
		<u>3600,298 81</u>

Dividend declared May 6, 1828, \$2 50 on each share of stock.

Dividend declared Nov. 4, 1828, 2 50 on each share of stock, at the rate of 5 per cent. per annum.

*Lancaster county, ss.*

Personally appeared before me the subscriber, one of the justices of the peace, in and for the county of Lancaster aforesaid, John M'Kissick, cashier of the Columbia bridge company, who being duly sworn according to law, says the above statement is just and true, to the best of his knowledge and belief.

JOHN M'KISSICK.

Sworn and subscribed the 6th day of November, A. D. 1828, before me,

JAMES CLYDE.

*State of the FARMERS' BANK, November 4, 1828.*  
DR.

To capital paid in	300,350 00
Notes in circulation	184,715 00
Dividends unpaid	12,275 95
Due the commonwealth, tax on dividend	778 46
Due to other banks	3,180 00
Due to depositors	73,729 49
	<hr/>
	8575,028 90

## CR.

By bills discounted	374,797 38
Bonds and mortgages,	37,205 84
Farmers' bank stock, original cost \$105,732	82,374 00
Real estate	18,770 95
Due from other banks	18,852 36
Notes of other banks	18,000 00
Specie	25,028 37
	<hr/>
	8575,028 90

Dividend declared May, 1828, on \$194,618 at 5 per cent. per annum	84,865 45
Dividend declared Nov. 1828, on 194,618 at 5 per cent. per annum	4,865 45

*Berks county, ss.*

Personally appeared before me the subscriber, one of the justices of the peace, in and for said county, Benneville Keim, president of the Farmer's bank of Reading, who being duly affirmed according to law, says the above statement is just and true.

BENNEVILLE KEIM, *President.*

Affirmed and subscribed the 25th day of November, A. D. 1828,  
before me, PETER NAGLE.

*State of the BANK OF CHESTER COUNTY, Nov'r 4, 1828.*  
DR.

To capital paid in	90,000
Notes in circulation	221,621
Contingent fund	45,949 01
Dividends unpaid	6,101 90
Due to the commonwealth, tax on dividends	720 00
Due to other banks	9,417 72
Due to depositors	216,386 79
	<hr/>
	8590,196 42

# BANK REPORT.

\$49

## CR.

By bills discounted	291,270 87
Bonds	9,338 80
Mortgages	7,250 00
Judgments	26,331 32
Pennsylvania 5 per cent. loan	25,000
United States stock	18,000
Chesapeake and Delaware canal stock	5,000
Schuylkill navigation loan	115,000
Specie	61,195 64
Notes of other banks	12,850 00
Due by other banks	11,846 93
•Real estate	5,163 00
Expenses	1,949 36
	<hr/>
	\$590,196 42

\*The banking house and lot, costing \$6,000, and bank furniture, have been paid out of the profits of the institution.

Dividend declared May 6, 1828, on \$90,000 at 5 per cent 84,500 00

Dividend declared Nov. 4, 1828 on \$90,000 at 5 per cent. 4,500 00

*Chester county, ss.*

Personally appeared before me the subscriber, one of the justices of the peace, in and for said county, David Townsend, cashier of the bank of Chester county, who being duly affirmed according to law, says the above statement is just and true.

DAVID TOWNSEND, *Cashier.*

Affirmed and subscribed this 24th day of November, 1828, before me,

WM. EVERHART.

*State of the bank of DELAWARE COUNTY, November 4, 1828.*

## DR.

To capital paid in	77,510
Delaware county bank-notes on hand	46,819
do do in circulation	76,632
Surplus fund	9,884 53
Dividends unpaid	2,572 00
Discount and interest received	5,332 84
Due to other banks	453 17
Due to depositors	30,729 32
	<hr/>
	\$299,932 86

## BANK REPORT.

CR.

By bills and notes discounted		53,096 02
Judgment bonds		124,520 .
Stock of Schuylkill bank		11,523 37
Chesapeake and Delaware canal stock		2,000
Banking house and lot		10,354 35
Other real estate		5,716 55
Expenses		351 54
Due by Philadelphia banks		10,207 69
Amount of cash in bank, (specie)	\$34,654 84	
Notes of Delaware county bank	46,819	
Notes of Philadelphia banks	690	
	<hr/>	82,163 34
		<hr/>
		<u>\$299,932 86</u>

PRESTON EYRE, *Cashier.*

Dividend declared May 6, 1828, on \$77,510 at 4 per cent.	3,100 40
Dividend declared Nov. 4, 1828, on 77,510 at 4 per cent	3,100 40
	<hr/>
	<u>\$6,200 80</u>

PRESTON EYRE, *Cashier.**Delaware county, ss.*

Personally appeared before me the subscriber, one of the justices of the peace, in and for said county, Preston Eyre, cashier of the bank of Delaware county, who being duly affirmed according to law, says the above statement is just and true.

PRESTON EYRE, *Cashier.*

Affirmed and subscribed the 21st day of November, A. D. 1828, before me,

GEORGE M. BARTRAM, *J. P.*

State of the *BANK OF MONTGOMERY COUNTY*, November 4th, 1828.

DR.

To capital stock paid in,	\$133,250
Notes in circulation,	149,170 50
Contingent fund,	11,732 70
Dividends unpaid,	3,916 15
Due to the commonwealth, tax on dividends,	533
Due to other banks,	200
Due to depositors,	101,091 32
	<hr/>
	<u>399,893 67</u>



## CR.

By bills and notes discounted,	\$139,085 26
Mortgages,	28,323 71
Judgments,	37,127 19
Bills of exchange,	15,075
Notes on demand,	28,843
Loan to commonwealth of Pennsylvania,	60,000
United States, $4\frac{1}{2}$ per cent stock, (cost,)	5,689 05
do 3 do do	20,932 20
Specie,	31,066 18
Notes of other banks,	2,780
Checks, do do	1,590
Due by other banks,	10,372 07
Real estate,	18,755 06
Protests, &c.	166 75
Over drawn,	86 20
	<hr/>
	399,893 67

Dividends declared May 6th, 1828, on \$ 133,250, at $2\frac{1}{2}$	
per cent,	3,331 25
do do Nov. 4th, 1828, on 133,250 at do.	3,331 25
	<hr/>
	6,662 50

*Montgomery County, ss.*

Personally appeared before me, the subscriber, one of the justices of the peace in and for said county, D. Wolmer, cashier of the Bank of Montgomery county, who being duly sworn according to law, says the above statement is just and true.

D. WOLMER, *Cashier.*

Sworn and subscribed, the 24th day of November, A. D. 1828, before me,

A. MOORE, jr.

*State of the EASTON BANK, November 4th, 1828.*

## DR.

To capital stock,	\$ 181,140 00
Bank notes in circulation,	289,311 33
Contingent fund,	39,815 37
Dividends unpaid,	11,627 75
Due to the commonwealth, tax on dividends,	1,449 12
other banks,	2,309 40
depositors,	134,506 83
	<hr/>
	660,159 80

## CR.

By bills discounted,	\$ 427,082 63
Bonds and mortgages,	54,586 20
Six per cent. U. S. stock,	7,619 80
10 shares of the Easton Water Company,	250 00
13 do Commercial Bank,	650 00
279 do Farmers' and Mechanics' Bank,	13,950 00
53 do Bank of Pennsylvania,	21,200 00
11 do North America,	4,400 00
152 do Schuylkill Bank,	3,800 00
	<hr/> 51,869 80
Loan to the commonwealth of Pennsylvania,, at 5 per cent.	25,000 00
Specie,	37,930 91
Notes of other banks,	7,226 00
Amount due by other banks,	56,464 26
	<hr/> 660,159 80
Dividend declared May, 1828, on \$181,140, at 5 per cent.	9,057 00
Nov. do do	9,057 00
	<hr/> 18,114 00

N. B. The banking house has been long since paid for.  
*Northampton county, ss.*

Personally appeared before me, the subscriber, one of the justices of the peace in and for said county, James Sinton, cashier of the Easton Bank, who being duly affirmed, according to law, says the above account is just and true.

J. SINTON.

Affirmed and subscribed, the second day of December, A. D. 1828, before me.

J. WEYGANDT.

*An abstract of the debts and credits of the NORTHAMPTON BANK, Tuesday, November 4, 1828.*

Capital stock paid in	112,500
Bank notes in circulation	310,897
Contingent fund	\$11,300 41
Profit and loss account	84 37— 11,384 78
Dividends unpaid, including dividend declared this day	4,242 60
Amount due the commonwealth, tax on dividends	525 17
Amount due other banks	6,826 00
do due depositors	\$47,486 11
Deduct overdrafts	772 09— 46,714 02
	<hr/> \$498,089 57

# BANK REPORT.

\$53

Bills discounted	129,514 73
Bonds and notes	\$151,600 00
Add notes on demand	5,660 00—157,260 00
Amount of capital stock held by the bank	18,720 00
Real estate, banking house and lot included	33,119 81
Expenses, costs on notes in suit	117 88
Specie, gold, silver and copper coin	\$28,128 09
Notes of other banks and drafts	3,605 92
Amount due by other banks	22,085 84
Amount due by other incorporated companies, subject to drafts at short date	100,268 86
Account of the acting manager of the Lehigh coal and navigation company	268 44—154,357 15

\$493,089 57

There are no mortgages or judgments held by this bank, except as collateral security.

Dividend declared in May, 1828, on \$93,780 at 6 per cent. per annum 2,813 40

Dividend declared in Nov. 1828, on 93,780 at 8 per cent. per annum 3,751 30

\$6,564 60

*Lehigh county, ss.*

Personally appeared before me the subscriber, one of the justices of the peace in and for the said county, John Rice, cashier of the Northampton bank, who solemnly affirmed that the above is a true and correct statement of the affairs of the said bank.

JOHN RICE, *Cashier.*

Affirmed and subscribed before me, the 13th day of December, A. D. 1828.

JOHN EALER.

*State of the YORK BANK, November 4th, 1828.*

DR.

To capital paid in	\$ 168,720 00
Notes in circulation	10,570 00
Contingent fund	5,445 88
Dividends unpaid	7,440 50
Due to the commonwealth, tax on dividends	944 84
Due to other banks	24,983 26
Due to depositors	14,764 27
	<u>457,868 75</u>

## CR.

By bills discounted	\$255,881 16
Bonds	18,064 74
Stocks, United States' 4½ per cent. loan	30,000
York water stock	300
	<hr/> 30,300 00
Specie	128,622 11
Notes of other banks	22,550 00
Due by other banks	2,950 74
Real estate	
Banking house, cost \$10,370 80, has been paid out of the profits of the institution.	
	<hr/> <hr/> 457,868 76

Dividends declared May 6, 1828, on \$168,720, at 8½ per cent. 5,905 20  
do do Nov. 4, 1828, on 168,720, at do 5,905 00  
York county, ss.

Personally appeared before me, the subscriber, one of the justices of the peace in and for said county, John Schmidt, cashier of the York Bank, who being duly sworn, according to law, says the above statement is just and true.

J. SCHMIDT.

Sworn and subscribed, the 17th day of November A. D. 1828.  
before me, J. ROBINSON.

*State of the CARLISLE BANK, November 4th, 1828.*

## DR.

Capital,	\$168,230 00
Notes in circulation,	139,810 00
Contingent fund,	3,969 63
Due commonwealth of Pennsylvania,	928 75
Due to other banks,	11,024 80
Due to depositors,	56,953 03
	<hr/> <hr/> 380,916 19

## BY

Bills discounted,	\$278,030 00
Judgments,	2,000 00
Carlisle bank stock,	3,700 00
Specie,	32,353 99
Notes of other banks,	20,992 13
Due by other banks,	22,799 09
Real estate,	21,040 78
	<hr/> <hr/> 380,916 19

# BANK REPORT.

355

Dividend declared May 6, 1828, on \$ 164,714, at 3½  
per cent. 5,764 99  
do do Nov. 4, 167,780, do 5,844 35

November dividend on part of the stock for only part of the time of 6 months.

*Cumberland county, ss.*

Personally appeared before me, the subscriber, one of the justices of the peace, in and for said county, A. M'Dowell, cashier of the Carlisle Bank, who being duly sworn, according to law, says the above is just and true.

A. M'DOWELL, Cashier.

Sworn and subscribed the 2d day of December, A. D. 1828, before me,

JOHN B. HAVERSTICK.

## State of the BANK OF CHAMBERSBURG.

### DR.

To capital paid in,	\$ 246,651 67
Notes in circulation,	213,515 00
Dividends unpaid,	14,181 36
Treasurer of the state, tax on dividends,	1,183 92
Due to other banks,	14,862 51
Depositors,	37,338 40
	<u>527,732 86</u>

### CR.

By bills discounted,	\$ 265,861 04
Inland bills of exchange,	41,250 13
Mortgages,	13,956 08
Judgments,	108,599 67
Bonds,	5,619 97
	<u>128,175 72</u>
Turnpike stock, (Chambersburg)	640 00
Water stock,	1,000 00
Specie,	17 184 00
Notes of other banks,	7,305 00
	<u>24,489 00</u>
Amount due by other banks,	10,857 29
Real estate,	35,964 46
Lot for new bank,	2,111 32
Expenses paid for building new bank, in part,	7,612 25
Profit and loss,	6,011 65
	<u>527,732 86</u>

## BANK REPORT.

Dividend declared May 6, 1828, on \$246,651 67, at 3	
per cent.	7,399 55
do Nov. 4, 246,651 67, do	<u>7,399 53</u>

*Franklin county, ss.*

Personally appeared before me, the subscriber, one of the justices of the peace, in and for said county, A. Colhoun, cashier of the Bank of Chambersburg, and being duly sworn, according to law, says the above statement is just and true.

A. COLHOUN, Cashier.

Subscribed, the 29th day of December, A. D. 1828.

JNO. HERSHBERGER, [L.S.]

*Bank of GETTYSBURG, November 4th, 1828.*

**DR.**

To capital stock	125,298
Notes in circulation	76,275
Contingent fund	1,017 47
Dividends unpaid	4,364 43
Due to the commonwealth, tax on dividends	501 19
Due to other banks	20,700 35
Due to depositors	19,456 23
	<u>\$ 247,613 67</u>

**CR.**

By bills discounted	114,129 35
Bonds	18,077 58
Mortgages	1,404 57
Judgments including costs	36,522 06
Stock, Farmers' bank of Lancaster	1,000
Gettysburg water company	500
Gettysburg and Petersburg turnpike company	222 05 —1,722 05
Specie—Silver and cents	20,117 95
Gold	1,337 54—29,455 49
Notes of other banks	4,697
Due by other banks	1,736 58
Real estate	58,860 50
Due by J. J. Cohen, jr. & brothers, Baltimore	53 90
Expenses	953 59
	<u>\$247,613 67</u>

Dividend declared May, 1828, on \$125,298, at 3 per cent	3,758 94
Dividend declared November, 1828, on \$125,298, at 2 per cent	<u>2,505 96</u>

*Adams County, ss.*

Personally appeared before me the subscriber, one of the justices of the peace, in and for said county, John B M'Pherson, cashier of the bank of Gettysburg, who being duly sworn according to law, says the above statement is just and true to the best of his knowledge and belief.

J. B. M'PHERSON.

Sworn and subscribed the 29th day of November, A. D. 1828, before me,

SAMPSON S. KING.

*Monongahela Bank of BROWNSVILLE, November 4th, 1828:*

DR.

To capital stock paid in	102,123
Notes in circulation	144,935
Surplus fund	6,752 33
Dividends unpaid including the dividend declared this day	6,180 91
Due to the commonwealth, tax on dividends	531 03
Due to foreign banks	1,418 50
Due to depositors	41,880 83
	<u>\$ 303,821 60</u>

CR:

By bills and notes outstanding	151,464 90
Mortgages	1,981
Judgments	30,629 45—184,075 35
Monongahela bank of Brownsville stock	2,412
Specie, gold \$1,489 11, silver 18,725 12, 20,214 23	
Notes of other banks	38,905
Due by other banks	32,420 84—91,540 67
Real estate purchased for debts	19,308 20
Real do	5,284 51—24,592 71
Personal property	150
Beaver bank notes and certificates	1,051 47
	<u>\$ 303,821 60</u>

NOTE.—The current expenses for the present year ending this day were \$ 1,061 13

Dividend declared May 6th, 1828, on \$102,123 at 3 per cent	3,063 69
Dividend declared Nov. 4th, 1828, on \$ 102,123 at 3½ per cent	3,574 30

\$ 6,637 99

*Fayette County, ss.*

Personally appeared before me the subscriber, one of the justices of the peace in and for the county aforesaid, John T. M'Kennan, cashier of the Monongahela bank of Brownsville, who being duly sworn according to law, says the above statement is just and true.

JOHN T. M'KENNAN, *Cashier.*

Sworn and subscribed the 22d November, 1888, before me,

MICHAEL SOWERS.

*State of the WESTMORELAND BANK OF PENNSYLVANIA, November 4, 1888.*

To capital paid in,	\$112,783
Notes in circulation,	181,955
Contingent fund,	4,493 47
Dividends unpaid,	4,290 49
Due to the commonwealth—tax on dividends,	541 35
Due to other banks,	5,531 89
Due to depositors,	36,018 33
	<hr/>
	345,613 53
	<hr/>
By bills discounted,	\$236,957 29
Bonds,	
Mortgages,	
Judgments, \$60,000	
Stock,	
Specie,	25,423 21
Notes of other banks,	30,978
Due by other banks,	33,755 03
Real estate,	17,850
Expenses,	650
	<hr/>
	345,613 53
	<hr/>

*Westmoreland County, ss.*

Personally appeared before me, the subscriber, one of the justices of the peace in and for said county, Paul Morrow, cashier of the Westmoreland bank of Pennsylvania, and being duly sworn according to law, says the above statement is just and true.

PAUL MORROW, *Cashier.*

Sworn and subscribed before me, 8th Dec. 1888.

JOHN HUGER.



**State of the FARMERS' BANK OF BUCKS COUNTY**  
**4th, 1828.**

**DR.**

To capital originally paid,	260,
Notes in circulation,	75
Surplus fund,	4
Dividend unpaid,	1,
Due to the commonwealth, tax on dividends,	
On obligations,	3,
Depositors,	37,
	<hr/> 183, <hr/>

**CR.**

By notes discounted,	86,
Bonds,	
Stock of this bank,	12,
Specie,	9,
Notes and checks of other banks,	2,
Below par,	
Due from other banks	28,
Protests paid,	16
From Joseph Hulme, under his assignment,	27,
Suspense,	15,
	<hr/> 183, <hr/>

1828, May 6th, no dividend,  
 Nov. 4th, dividend on \$42,945 at 5 per cent. or  
 forty-five cents per share, 1,2

**Bucks County, ss.**

Personally appeared before me, the subscriber, one of t  
 tices of the peace in and for the county of Bucks, Robert C.  
 ty, cashier of the Farmers' Bank of Bucks county, who bein  
 affirmed according to law, says the above statement is just an

**R. C. BEATTY, Cash**

Affirmed and subscribed the 19th of 12th mo. 1828, befor

**S. ALLEN, Jr. J.**

*In the Senate, Jan. 5.*

The Deputy Secretary being introduced, presented the following message from the Governor, accompanied with a document, which were read as follows:

*To the Senate and House of Representatives of the Commonwealth of Pennsylvania.*

GENTLEMEN:

I have the honor of transmitting to the Legislature, a copy of a letter from a committee, appointed for the purpose, of the board of trustees of Dickinson College, together with a copy of a statement of the way and manner in which the state's annuity, during the past year, has been expended.

J. ANDW. SHULZE.

*Harrisburg, January 2d, 1829.*

*Carlisle, 30th December, 1828.*

To his excellency, J. Andrew Shulze, Esq.

SIR:

In obedience to the act of the legislature of this commonwealth, passed the 13th day of February, 1826, the undersigned a committee of the board of trustees of Dickinson College, appointed for that purpose, present the enclosed "statement of the way and manner" in which the state's annuity of \$3000 and the other receipts during the past year, have been expended.

We have the honor to remain,

Your excellency's most humble,  
and obedient servants,

GEO. DUFFIELD,  
JACOB HENDEL.

*Receipts and expenditures of Dickinson College, during the year commencing October 5, 1827, and ending September 24, 1828.*

1827		Receipts,	
Oct. 5	To balance		\$478 12
1-28			
Jan. 8	To state's annuity,		3,000 00
Apr. 7	Grammar school,		228 20
do	College session,		3 965 78
Sep. 24	do do		2,116 81
do	Grammar school,		160 89
			<hr/>
			\$ 10,149 80

1827

## Expenditures.

Oct. 5, By incidental expenses, including fuel account, janitor's wages, treasurer's commission, increase of library, repairs, addition to apparatus, improvements in laboratory, &c.	\$1,198 62
Steward,	937 58
Drawback,	231 02
Temporary loan,	1,544 23
Reduction of permanent loan, leaving the college debt now \$ 2000,	821 62
Professors' salaries,	4,948 39
Balance now in treasury,	448 84
	<hr/>
	\$ 10,149 80

The undersigned, a committee of the board of trustees of Dickinson college, appointed for that purpose, certify that the above statement is correct, and made agreeably to the provisions of the act of the legislature, supplementary to an act, entitled "An act for the establishment of a college, at the borough of Carlisle, in the county of Cumberland, in the state of Pennsylvania," passed the thirteenth February, 1826, rendering "a statement of the way and manner, in which the state's annuity of \$ 3000, and the other receipts of the college, during the year commencing October 5, 1827, and ending September 24, 1828, have been expended.

GEO. DUFFIELD,  
JACOB HENDEL:

*Carlisle, December 30th, 1828.*

*In the Senate, January 15, 1829.*

The Secretary of the Commonwealth being introduced, presented a message from the Governor, accompanied with documents relative to the Chesapeake and Ohio canal company, which were read as follow, viz.

*To the Senate and House of Representatives of the Commonwealth of Pennsylvania.*

GENTLEMEN:

I have the honor of transmitting to you a copy of a memorial of the Chesapeake and Ohio canal company to the general assembly of Maryland, and the memorial of the president and directors of the Chesapeake and Ohio canal company to the Senate and House of Representatives of the commonwealth of Pennsylvania, together with documents accompanying the same.

J. ANDW. SHULZE.

*Harrisburg, January 14, 1829.*

*Memorial of the Chesapeake and Ohio canal company to the general assembly of Maryland, January, 1829.*

*To the General Assembly of Maryland.*

The memorial of the Chesapeake and Ohio canal company, by the undersigned president and directors thereof, respectfully represents:

That on the twentieth day of June last, the undersigned were elected president and directors of the Chesapeake and Ohio canal company, by a general meeting of the stockholders of the company, convened pursuant to notice, in the city hall of Washington, and immediately afterwards proceeded to execute the trust reposed in them, under the charter of the company; a copy of which, with the by-laws of the company, certain rules adopted by the president and directors for their own government and that of their corps of engineers, and tabular statements of the contracts made for the construction of forty-eight miles of the canal, are annexed to the memorial, together with an exposition of the condition of the company's funds down to the last return of the treasurer.

Among the duties which the undersigned have performed in the past year, has been included, that of fixing definitively the eastern termination of the canal.

In the performance of this difficult and delicate trust, it was deemed essential to the permanent validity of any decision which the president and directors might form, that the subject should be submitted to a general meeting of the stockholders.

In preparing a question, on which to take their final judgment, the president and directors were regardless of the liberal spirit, which the state of Maryland had ever manifested towards the en-

terprise confided to their care, and adverting to her past policy, in relation to the future extension of the canal, sought earnestly, and they confidently believe, successfully, to advance that policy.

By the report of a civil engineer, a highly respectable native citizen of her great commercial emporium, it had been affirmed, that to enable the state of Maryland to extend the Chesapeake and Ohio canal to Baltimore, it should be brought down to Georgetown, at a level of not less than twenty-five or thirty feet above the tide. It has accordingly been brought to the heart of Georgetown, at a level of thirty-seven feet above tide water, thereby saving, in its future extension, on that high level, not only the purchase or condemnation of much valuable ground in Georgetown, but the heavy excavation in the rear of Washington, to which a lower elevation would have been exposed; while the expense incurred beyond the point, from whence the Chesapeake and Ohio canal descends towards its termination, is chiefly for locking down to the river, which must otherwise have been encountered at greater inconvenience, and much greater cost, immediately above Georgetown. The basin, essential to any termination of the canal, would no where have proved of such easy construction, as at the mouth of Rock creek; and the sale of the mole or pier, designed to form it, enlarged to a breadth of eighty feet, will pay very nearly, for the construction of the entire basin.

The president and directors and the stockholders, did not, while they promoted the interest of the state of Maryland, in advancing the general interest, and securing the harmony of the company, fail to examine carefully, the extent of the power under which they acted, and while not doubting their chartered authority, so to terminate the canal, yet, for greater security, referred the validity of the act, by which they did so, to the judgment of the highest law officer of the United States, whose published opinion accompanies this expose of the present condition of the common enterprise of so many governments and cities.

The undersigned trust it will appear, that the great enterprise committed to their care is proceeding as prosperously and speedily as existing circumstances will permit, and as the public had been led to expect from the prior calculations, submitted to the general assembly of Maryland, and to the other parties to the charter of the company by the central committee of the Chesapeake and Ohio canal convention.

The available funds of the company now amount to about three millions six hundred thousand dollars, to which the president and directors hope very shortly to be able to add a subscription by the commonwealth of Virginia, calculated to swell this sum to more than four millions of dollars; an amount it is believed sufficient to complete the canal as far, at least, as Cumberland.

The dimensions of the canal have been extended to sixty feet, at its surface, forty-two feet at its base, and a depth of six feet below its water line, thus affording a cross section of 306 feet. The locks under contract are twenty-seven in number and one hundred

feet in length, and fifteen in breadth in the clear; they average a lift of eight feet, and are to be constructed of solid stone masonry. Two stone aqueducts over the Monocacy and Seneca, besides more than eighty culverts, and twelve lock-keeper's houses of the same material, have been constructed for, as part of the forty-eight miles of canal already let. This portion of the canal embraces also a capacious basin at its eastern termination, requiring an extensive embankment or mole, across the mouth of Rock creek.

The cost of the whole of this work will be seen, by the accompanying tables, to be nine hundred and fifty-one thousand two hundred and thirty-six dollars, and when the remaining lock-houses, a few waste weirs, and the Seneca feeder and guard lock shall be added, the whole cost, exclusive of engineers and officer's salaries and contingencies will *probably* reach one million and fifty thousand dollars.

The undersigned cannot speak with absolute confidence on this subject, for reasons very apparent.

In the estimate of the excavation of the first seventeen miles let above the Little Falls and below the mouth of Seneca, the contracts were for a canal of five feet depth only. Some allowance must be made for the addition of one foot to this depth, and for the occasional discovery below the natural surface of the ground of rock, where common earth alone had been expected. A provision has also been made for lining the inner slopes of the canal with stone, where it can be done at reasonable cost. All these expenses together, may swell the cost of the first forty-eight miles of the canal, to very near or quite eleven hundred thousand dollars, or twenty-two thousand nine hundred and sixteen dollars per mile, exclusive of any allowance for damages to the proprietors of the lands through which the canal is conducted. Of this amount, the inner pavement is computed at near one thousand dollars a mile. It is designed to fit the canal for boats moving with more than ordinary velocity, by protecting its banks from washing. By the increased dimensions of the canal, combined with the last mentioned provision, the president and directors have sought to give every facility to that intercourse between the eastern and western states, which it is one of the objects of this great national work to promote.

The cross section of the Chesapeake and Ohio canal will be found on comparison with that of the Erie canal, of New York, to exceed the latter by nearly one hundred and twenty per cent. An excess leading to an advantage the undersigned are prepared to show much exceeds in value, the amount of its actual cost, since the most satisfactory experiments have demonstrated that a boat, adapted to the locks of both canals, can be impelled on that of greater volume, at the same velocity, with a force one third less than that required on the smaller canal, or in other words, that by the enlargement of the cross section of the Chesapeake and Ohio canal beyond that of the Erie canal, an advantage has been gained for the former, much more than equivalent to the entire consumption of time by a lockage of more than three thousand two hundred

feet. And this would be true, were a minute per foot allowed, for passing through a series of locks of that aggregate lift. But when it is reflected that by very recent improvements in the construction of locks, that time is reduced one half, at least, this advantage becomes of yet greater magnitude. It is demonstrable, by the force of experiment, that after completing the continued navigation so long contemplated, from the city of Washington to Pittsburgh, which will be afforded by a canal not differing materially in length from that which connects Albany with Lake Erie, though very greatly in lockage, a given tonnage may be transported on the former, at twenty per cent. less cost for carriage merely, than on the latter, so as more than to atone for the difference of cost, and therefore of tolls between the two canals, arising from the expensive tunnel and lockage of the broader and deeper canal.

To realize all the benefit to be derived from this consideration, from the superior dimensions and inner pavement of the Chesapeake and Ohio canal, is one of the objects of the present memorial, by which the undersigned seek to obtain an explicit recognition of the power of the Chesapeake and Ohio canal company, to substitute boats for bridges, where the latter might be required on the canal, in consequence of the difficulty of conducting a pathway beneath it.

By leaving the surface of the water, unimpeded by any superstructure, not only steam power, but sails may be used to great advantage upon the Chesapeake and Ohio canal, as they are used in like manner on the canal of the Forth and Clyde, in Scotland. Where steam is not used, as in relation to boats of heavy burthen drawn by horses, the occasional sail spread to a favoring wind, will enable the boatmen to refresh their horses by carrying them on board, so that when put to the draft again, they will travel with renewed vigor and increased speed.

But the time may not be remote, when steam may supercede on such a canal, the use of any other moving power, and it is for the wisdom of an enlightened legislature, to guard against any permanent obstruction to its easy application.

Another end is also designed to be promoted by this substitution—security and comfort to the traveller.

It is known that many lives have been lost on the canals of New York, by the erection of bridges across them. Such bridges must be very low, or the inclined plane or road leading to, or from them, so steep as to be alike laborious and dangerous to ascend. A low bridge necessarily occasions a low pitched boat with a single deck, and a roof which no passenger dare stand upon without encountering continually occurring hazard from the bridges, under which he is to pass. From such a boat, exposed to the direct action of the sun's rays, the current of air is excluded, by the canal banks, while every noxious winged insect is attracted to it, by the stagnant atmosphere in its vicinity. A boat, on the contrary, unobstructed by bridges, may be lifted by a second or third story, above the banks of the canal, so that the traveller will be regaled by currents of fresh air, and an unobstructed prospect of the

country around him, and find ample accommodation for exercise by day, and quiet repose at night. All this too, he will have added to increased velocity and perfect safety, especially if the steam boat be used to tow the passage boat. The undersigned are confident of obtaining a velocity of 150 miles a day, for the passage boats of their canal, if no impediment be thrown in their way by bridges. They therefore, ask to be relieved from any supposed necessity of constructing them, and in lieu of them, to be allowed to establish ferries on public roads, and to enter into a reasonable composition with the proprietors, where estates are divided by the canal line, to supply a boat for their use when needed, or to purchase or acquire the slip of land cut off from any larger tract by the canal, and afterwards to hold, sell, let, or otherwise dispose of it, for the benefit of the company.

The undersigned are induced to believe that this power may be advantageously extended so far as to enable the president and directors, with the consent of any proprietor, to buy on reasonable terms, the entire estate where so divided, and afterwards to hold, let, or otherwise dispose of it, on such terms as to exclude the necessity of any pass-way over the canal.

Regarding the preceding as a single purpose, involving several means for its perfect attainment, without private injury, the undersigned beg leave to add, that since the charter of the company was completed, they have conceived it expedient, and such has been the unanimous sentiment of the stockholders, to release the restraints imposed on the sale or letting of water power, along the margin of the canal.

Having in several places to resort to the main river for water, they therefore ask of your honorable body, permission to sell or let, for prescribed manufacturing uses, any surplus water which they may conduct by feeders into the canal, for that purpose, as well as that which unavoidably gains admission, and the present charter allows them to let.

It will be seen, that Pennsylvania has, with judicious foresight, conceded, what is now asked of your honorable body, and which, if granted, will be used in the spirit of its concession, without injury to the navigation of the canal.

For similar reasons, to promote the public benefit, cheapen the cost, and enhance the profit of their work, they ask like permission, to sell, or let, on the heavy embankments which they may find it necessary to form, for the moles or piers adjacent to their basins, upon, or at the termination of their canal, sites for houses of any description.

Signed

C. F. MERCER, *President*

*of the Chesapeake and Ohio canal company.*

W. SMITH,

ANDREW STEWART,

PETER LENOX,

FREDERICK MAY,

PHINEAS JANNEY,

} DIRECTORS.



*Washington, Jan. 9, 1829.*

SIR—The accompanying memorial, from the president and directors of the Chesapeake and Ohio canal to the general assembly of Pennsylvania, with its documents, I beg leave to present to that honorable body, through your excellency, and to seize this occasion to recommend to your favourable regard.

A detailed statement of the capital stock subscribed and paid in, and of the disbursements of the company, attested in the mode required by the act of Pennsylvania, confirming the charter of the Chesapeake and Ohio canal company, will be forwarded as soon as the receipt of the last instalment called for from the subscribers shall have been reported by the several banks authorised to collect the same.

I have the honor to be,  
With great respect,  
Your most ob't and humble servant,

C. F. MERCER, *President*  
*Chesapeake and Ohio canal co.*

His Excellency J. ANDW. SHULZE,  
*Governor of Pennsylvania.*

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*To the Senate and House of Representatives of the commonwealth of Pennsylvania, in general assembly met.*

The memorial of the Chesapeake and Ohio canal company, by the president and directors thereof, respectfully represents:

That the undersigned were, by a general meeting of the stockholders of the company, convened in the city hall of Washington, pursuant to notice, on the twentieth day of June last, duly elected president and directors of the said company, and accordingly proceeded to the execution of the trust thereby reposed in them. In doing so they have availed themselves of all the lights to be derived from the experience of the several states of the Union, most distinguished in the career of internal improvement, and have derived from none more aid than from the example of Pennsylvania, whom they recognise as a founder, also, of the great enterprise, confided to their care and superintendence by the Chesapeake and Ohio canal company.

The annexed copies of the proceedings, which led to the incorporation of the Chesapeake and Ohio canal company; of the various acts of congress and of the states, which now form their charter; of the rules and regulations which have been since adopted by the company and their president and directors, accompanied by a tabular illustration of the contracts recently made for the construction of forty-eight miles of the canal; and a copy of a recent memorial,

from the president and directors, to the General Assembly of Maryland (see document A,) will shew to what extent, that experience has been usefully applied by your memorialists.

The expose of the state of the company's funds is attested by the oath of the president, as required by the act of the General Assembly of Pennsylvania, authorising the extension of the Chesapeake and Ohio canal, through her territory to its original destination, at Pittsburg.

The authority sought to be obtained of the state of Maryland, for letting water rights along the margin of the canal, has been already conceded, in principle, by your honorable body; and the other object embraced in the memorial to the General Assembly of Maryland, is analogous to the authority, vested in the company by the same act, to substitute fords for bridges across the canal, though its enlarged dimensions rendering the former impracticable, it has become important to the general policy of the improvement of the canal, which has been proposed to the legislatures of Maryland and Virginia, that a correspondent modification of the act of Pennsylvania be also obtained.

The liberty of letting sites, for other improvements than water works, on the moles or piers, adjacent to the basins to be formed on the canal, is designed for application, chiefly, in the district of Columbia, but needs the sanction of Pennsylvania, as it would impart a faculty to the company, which being created by the concurrent acts of the legislatures of the Union, and of the states, requires, it is presumed, their co-operation, to enlarge or modify its existing powers.

A like specific but more important object, solicits the attention and liberality of your honorable body:

By the fifth section of the act of Pennsylvania, already referred to, it is provided, "That, should the United States of America, subscribe to the stock of the said Chesapeake and Ohio canal company, the said company shall, within six months after receiving the sum subscribed, commence the western section of said canal, at such point or points, as may be deemed most advantageous to the interests of the said company; and it shall be their duty to apportion at least one half of the subscription of the United States to the western section of the said canal. And whatever amount of stock may be subscribed by the citizens of Pennsylvania, shall be expended wholly on the western section, unless authority is given to the said company, by the Pennsylvania subscribers, to expend their subscriptions differently; and in case of failure of the said company to comply with the provisions herein set forth, this act shall cease to have any force or effect whatever."

The inconvenience of the last of these provisions is remediable by a direct application to the private subscribers to the stock of the Chesapeake and Ohio canal, residing within the state of Pennsylvania, and it is not desired to alter, by any modification of the act above mentioned, the condition, which it supplied, to their subscription.

But your memorialists appeal, in behalf of the United States, the states of Maryland and Virginia, the cities of the district of Columbia, and the individual subscribers of those commonwealths and of that district, to the justice, as well as liberality of the General Assembly of Pennsylvania, to relieve the great enterprise in which so many interests having with great labour and zeal been made to unite, from a condition, which, if persevered in, must produce either an abandonment of the original plan of the Chesapeake and Ohio canal convention, which is that of the company to which the convention has given rise, or a suspension, for several years at least, of the profit on the expenditure of a large part of the available capital stock of the company.

Your memorialists believe that the prosperous conduct and issue of the work, commenced on the eastern section of the Chesapeake and Ohio canal, are assential to the speedy completion of the entire enterprise.

It is not difficult to demonstrate, that after crossing with the canal, along the Potamac, the fertile limestone vallies of the Shenandoah and the Conogocheague, in Virginia and Maryland, the profits of the eastern section will depend on the speedy extension of it, to the town of Cumberland, and the coal banks, at the base of the Allegheny. But, to reach these points, will require the entire sum, subscribed by the United States, and the states, cities, and individuals, who are co-partners in this enterprise.

Should Virginia, as is confidently expected, add half a million of dollars to the three millions six hundred thousand, which now constitute the available capital of the company, the entire amount, will still fall short, more than three hundred thousand dollars, of the sum at which, the eastern section of the canal has been estimated, supposing it to retain its present dimensions by the revised calculations of the civil engineers, Messrs. Geddes and Roberts, which are, moreover, four millions, short of the estimate of the United States board of internal improvement, for a canal of smaller demensions.

It is not therefore, wise or prudent to compute the cost of the eastern section of the canal, at less than the sum, which the company will possess, when it shall have received the anticipated aid from Virginia. For this sum, your memorialists believe that, by rigorous economy, the eastern section of the canal may be completed. One measure of that economy will be to complete this part of the work, with such rapidity, as, without any reference to the earlier profit from the tolls would diminish the expenditures, incurred in the salaries of officers; which, when this work shall have been finished, may be dispensed with to a great extent; or, as your memorialists confidently expect, be turned over to its western section, the term of their labours.

Such were the views which prompted the late subscription, by congress, who were distinctly and repeatedly assured, while that measure was depending, that no farther aid, than that, afforded by

a subscription of one million of dollars, would be asked of the United States, for the eastern section of the Chesapeake and Ohio canal. This assurance was necessary to the success of that measure and can be fulfilled, only by a release of the condition annexed by Pennsylvania to the sanction of the company's charter.

That neither your memorialists, nor those whose unanimous petition, they express, have the remotest idea of delaying, longer than may be necessary, the commencement and completion of the western section of the Chesapeake and Ohio canal, is manifested by the uniform tenor of their declarations and the high character of those whom they represent. [vide annexed resolutions.]

Part of the ground to be occupied by the western section of the canal, they have already purchased; applications have been received by them, to let the tunnel through the Allegheny, and one of the first operations of their board of engineers, after preparing the eastern section, to be let, as is expected before the ensuing summer, will be to explore a third time, and to revise the estimates of the cost of the western section of the canal, preparatory to opening books in Europe as well as America, for a subscription of the stock required for its construction.

Your memorialists believe that a large proportion of the sum required for this section, will be more readily obtained from the United States, should the public anticipation of the favorable progress of the eastern section, founded on the assurances of the undersigned, be realized to the extent which the president and directors are induced by every days experience, to reiterate, with increased confidence.

The appeal, which your memorialists presume to address to the justice of a great state, might be extended to many other views of the relation in which Pennsylvania stands to an enterprise which has, as yet, received her approbation, without that aid which she so widely and liberally extended to so many other objects of internal improvement within her territory; in some of which her immediate interest is not greater, than in that, which now seeks her forbearance, as well as her favor.

The time may come, the undersigned beg leave to add; they trust it will shortly arrive, when your memorialists may again invite the pecuniary assistance of your honorable body, towards a work, which, as a bond of connection between the centre and the extremes of the Union, cannot appeal in vain to a state second in population and wealth to but one, in its councils. That time will arrive when the actual results of the contracts for the construction of the Chesapeake and Ohio Canal, shall exclude all remaining doubts of its probable cost; and when a farther subscription to its stock by the United States, shall assure other subscribers, that the work when prosecuted west of the Allegheny, will be carried to its ultimate consummation; an union, in its bosom, of the eastern and

western waters by one uninterrupted canal, of dimensions corresponding with its national character and consequence.

Signed. C. F. MERCER,

*President of the Chesapeake and Ohio Canal.*

W. SMITH, AND W. STEWART, PETER LENOX, FREDK. MAY, PHINEAS JANNEY, JOSEPH KENT.	}	DIRECTORS.
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*The stockholders of the Chesapeake and Ohio canal company, in general meeting, June 21st, 1828.*

*Resolved,* That as soon as the sum of six millions of dollars shall have been subscribed, to the stock of the Chesapeake and Ohio canal, according to the provisions of the charter of the company, the president and directors of the company, may, and they are hereby instructed, to cause books to be opened, at such times and places, as they may deem expedient, for the reception of such further and additional subscriptions, not exceeding forty thousand shares, to the stock of the canal, as they shall find necessary to complete the same, as far as Pittsburg, in the state of Pennsylvania.

*And be it further resolved,* That the president and directors, be, and they are hereby instructed, to present to the legislature of the state of Pennsylvania, in behalf of the Chesapeake and Ohio canal company, a memorial requesting such a modification of the act of that state incorporating the Chesapeake and Ohio canal company, as may be alike conclusive to the advantage of the company and of the state of Pennsylvania.

*In the Senate, January 27, 1829.*

The Deputy Secretary of the Commonwealth being introduced, presented the following message from the Governor, accompanied with documents, which were read and laid on the table.

*To the Senate and House of Representatives of the Commonwealth of Pennsylvania.*

GENTLEMEN,

According to the desire of the General Assembly, and the request of the Governor of Georgia, I have directed the Secretary of the Commonwealth to lay before you a copy of the governor's letter, together with a copy of a report and resolution adopted by the legislature of that state, on the resolutions of South Carolina and Ohio, in relation to the powers of the general government and state rights, as also a copy of a remonstrance to the states, in favor of the tariff, likewise adopted by the legislature of Georgia, and approved of by the Governor.

J. ANDW. SHULZE.

*Harrisburg, January 26, 1829.*

# EXECUTIVE DEPARTMENT, GEORGIA,

*January 3d, 1829.*

SIR,

According to the desire of the General Assembly of Georgia, I request that the report and resolutions herewith transmitted to you, may be laid before the legislature of Pennsylvania.

I am, sir, your o'bt servant,

JOHN FORSYTH.

HIS EXCELLENCY, *the Governor of Pennsylvania.*

*Report adopted by the Legislature of the state of Georgia, on the resolutions of South-Carolina and Ohio.*

HOUSE OF REPRESENTATIVES, }  
December 10, 1828. }

The committee to whom was referred the resolutions from the States of South-Carolina and Ohio, have had the same under consideration.

As the subjects referred involve questions of the deepest interest, touching the fundamental principles of the federal government, the sovereignty of the states, causes of complaint for infractions of the constitution, and encroachments by the general government upon state rights, as well as the rights of the states to redress their wrongs, your committee have devoted their serious attention

and grave consideration to the subject which the magnitude and importance of the question involved require. And from the view which your committee have given the subject, they concur in the sentiments and resolutions of the state of South-Carolina upon most of the subjects involved in the discussion.

They entertain no doubt but that the constitution of the United States is a federal compact, formed and adopted by the states as sovereign and independent communities.

The convention which formed and adopted the constitution, was composed of members elected and delegated by, and deriving immediate power and authority from the legislatures of their respective states. Its ratification depended upon the legislatures of the states, each reserving the right of assent or dissent without regard to population.

By the articles of confederation of 1778, which was a compact between the states, there was a special reservation of all rights of sovereignty and independence, not thereby expressly delegated, which proves conclusively, that prior to entering into that compact, all the rights of sovereignty and independence belonged to the states, and were complete in them, and that they did not intend to divest themselves of any of those rights, except such as were expressly delegated.

In the constitution of 1787, the powers delegated are clearly defined and particularly enumerated. The amendment to the constitution is more explicit. It declares that the powers not delegated to the United States by the constitution, are reserved to the States respectively, or to the people.

The states were granting powers to the general government, and as they enumerated the powers granted, it was useless and would have been superfluous to have made special reservations. The affirmative grant of powers enumerated, operates an exclusion of all powers not enumerated.

The states in forming the constitution, treated with each other as sovereign and independent governments, expressly acknowledging their rights of sovereignty, and inasmuch as they divested themselves of those rights only which were expressly delegated, it follows as a legitimate consequence, that they are still sovereign and independent as to all the powers not granted.

The states respectively, therefore, have in the opinion of your committee, the unquestionable right in case of any infraction of the general compact, or want of good faith in the performance of its obligations, to complain, remonstrate, and even to refuse obedience to any measure of the general government manifestly against, and in violation of the constitution; and in short to seek redress of their wrongs by all the means rightfully exercised by a sovereign and independent Government. Otherwise, the constitution might be

violated with impunity and without redress as often as the majority might think proper to transcend their powers, and the party injured bound to yield a submissive obedience to the measures however unconstitutional. This would tend to annihilate all the sovereignty and independence of the states, and to consolidate *all power* in the general government, which never was designed nor intended by the framers of the constitution.

Your committee are also of opinion, that the acts of the general government in providing for the general welfare, must be general in their operation and promotive of the general good; not the advancement of the interest of any particular section or local interest, to the injury of another.

The term general welfare, implies clearly, that the means used to obtain this end, must be general in their nature and tendency. Any measures therefore having for their object sectional advantages or local interests, to the prejudice of another portion of the community, cannot be general, and therefore contrary to the letter and spirit of the constitution.

It is believed by your committee therefore, that the tariff laws of the United States, so far as they have for their object the protection of a particular branch of labor to the injury of the commercial interest of the country, and of the agricultural interest of the southern states, are unconstitutional.

For the same reason, Congress have not the right to appropriate the monies of the United States for the improvement or benefit of a particular section of the country, in which all the states would not have a common interest and equal benefit.

If Congress is invested with the right at all, she is invested to an unlimited and indefinite extent, and may exhaust the whole wealth and treasure of the government in the promotion of the improvement and interest of particular sections of the country to the injury of another. In fine, that she may make one portion of the country tributary to another—that she may tax the community to enrich or aggrandize a particular section, and make the general welfare yield to a particular interest.

But if it be true as your committee maintain, that the Congress of the United States are restricted to the powers expressly enumerated, it is equally true that they have no power or right to pass any laws but such as may be necessary and proper to carry into effect the powers enumerated, and which promote the general welfare of the United States.

In relation to the right of Congress to interfere either directly or indirectly with the subject of slavery, as recognized by the laws of this state, your committee deem it improper and unnecessary to enter into a discussion.

This state never can, and never will so far compromise her interests on a subject of such deep and vital concern to her self preservation, as to suffer this question to be brought into discussion. Non-interference on this subject was the *sine qua non* on the part of the slave holding states, in forming the Union, and entering into



the federal compact. As the southern states would then, so they must now or hereafter consider any attempt to interfere with this delicate subject, an aggression as having a tendency to produce revolt and insurrection of the most hideous character.

These states must view with jealousy and distrust, all associations having for their object the abolition of slavery. The principles propagated by the enthusiastic devotees of this project, are calculated to have the most pernicious effects—exciting false hopes of liberty; producing discontent and dissatisfaction in the mind of the otherwise happy and contented slave, and a restlessness for emancipation when the actual state of things forbids the possibility of it at present.

The Colonization Society is considered by your committee as one of a dangerous character in this respect. Its schemes of colonization are vain and visionary. Its professed objects never can be accomplished—they are wholly impracticable. This institution therefore, should not in the opinion of your committee, receive the support, countenance, or patronage of Congress, and not being a matter of national interest, the government has no right to take it under its protection, or make appropriations for its support. Your committee therefore recommend the adoption of the following resolutions:

*Resolved*, That this legislature concur with the legislature of the state of South-Carolina, in the resolutions adopted at their December session in 1827, in relation to the powers of the general government and state rights.

*Resolved*, That his excellency the governor be requested to transmit copies of this preamble and resolutions to the governors of the several states, with a request that the same be laid before the legislatures of their respective states; and also to our senators and representatives in congress, to be by them laid before congress for consideration.

*Approved Dec. 20, 1828.*

JOHN FORSYTH, Governor.

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No. 164.

*Remonstrance to the states in favor of the tariff, adopted by the legislature of Georgia.*

HOUSE OF REPRESENTATIVES, }  
Friday, Dec. 19, 1828. }

To the people of the states in favor of prohibiting importations, as a policy for the encouragement of domestic manufactures:

To preserve the union of the states, and the full enjoyment of that happiness which is secured to us all by a holy regard to the Constitution, is deemed an object of sufficient magnitude to justify

an address, friendly in its character, and brotherly in its objects, from one part of the political family to the other.

The people of Georgia believe the crisis to have arrived, when it becomes necessary, through their representatives, to express to you, in language of sincerity and truth, their views and feelings upon the great question which seriously affects the interest of a large portion of the confederacy, and agitates the feelings of the whole. It is not for the purpose of making captious objections to the exercise by Congress of legitimate powers, that we claim your attention—but, with an ardent hope, founded upon the intelligence, virtue, and love of common country which reigns among the people, of bringing the public servants back to that republican simplicity, in the administration of our affairs, which marks, sustains, and adorns our political institutions, and is the only safe guard to liberty. The nature and extent of our political associations cannot be misunderstood by any one who will discard sectional interest, and dispel from his mind the mists and prejudices produced by its deceptive influence.

That the relation in which we stand towards each other, may be distinctly understood and acknowledged, it is only necessary to review our several situations previous to any political alliance with each other. From our earliest colonization we were of kindred blood and kindred in principle, and close connexion in pure love of liberty. Our primary political connexion had its origin in the oppressions of the mother country. We resisted aggressions upon our unalienable rights, and with a fervour that thrilled through every heart, joined our fortunes, our lives, and our sacred honor, in the declaration of our independence and the achievement of our liberties. Providence hallowed the undertaking, and victory sealed our triumph; and each of us was acknowledged a *free, independent, and sovereign state*.

To secure the blessings of liberty to ourselves and our posterity, we formed that constitution, against the provisions of which, no Georgian was ever heard to utter a murmur of complaint. It was by that constitution we expected to be governed in our relations with foreign governments, and with each other as states, or independent communities. The people of Georgia wish neither to deny, or to withdraw any power which they have granted. They love and venerate the constitution, as they believe a tenacious adherence to it is the only security to the prosperity, the liberties, the glory and the happiness of all the states; and that upon its perpetuation, in its native purity, the principle and progress of free government in the whole world depend. In the legal exercise of the powers conferred in that instrument there is not a dissenting voice in Georgia—but it is the misconstruction and abuse of those powers that is sought to be redressed. The sovereignty of the state governments was never intended to be given up or impaired, in any other manner than that expressed in the constitution; and was retained and cautiously guarded, both by the *limited* and special grants of power in the constitution, and by the insertion in that

instrument of the following articles: "The enumeration in the constitution of certain rights, shall not be construed to disparage others retained by the people;" and "the powers not delegated to the United States by the constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people." These articles were intended as express limitations to the general government, and explicit reservations to the state governments of every power not granted. The language is too plain to fail in expressing the object of the convention. It cannot then be *believed*, notwithstanding the warmth and earnestness with which it has been contended, that the states assented to any power being given to the national government, but those which were expressed and those which were strictly necessary and proper to carry such expressed powers into effect.

A system of measures not contemplated by the constitution, has been adopted and pertinaciously pursued by Congress, having for its object the improvement of particular parts of the country, and the advancement of sectional interests. These measures, of whatever kind or character, are justly objectionable—as they can only be supported by forced constructions of the constitution, and are partial and oppressive in their operation; and among them may be included that system, which has been in progress for years, of levying heavy duties to exclude from our ports many articles of general commerce, for the purpose of encouraging and protecting the manufacturing interest, in exclusion of the other great branches of industry.

If it were inexpedient only, oppressive and ruinous as it is to our interests, we would not use this method of opposing it. The repeal of the measure would be sought in a different way. But when it is an open and violent infraction of our compact, we have a right which we will never surrender, to demand its repeal. It is not presumed that you will continue to confide in those who persevere in the exercise of a power which has never been granted them. If it has been granted, it is open to public view. There are no secrets in the constitution—but for the authority which it confers, the national government would not exist. Its power is based upon the constitution alone, and has no auxiliary. Where then, we may confidently ask you, is the power granted, either expressed or implied, either in letter or spirit, to pass laws to create, extend, and to protect a particular branch of industry, to the prejudice of other interests of equal importance to the people, and of equal advantage to the nation? It cannot be denied that this is the effect of protecting duties, and that it was intended to be the effect, as prices of all articles upon which duties are paid are obviously enhanced to the extent of the duty imposed. Is the right claimed by Congress fairly derivable from the power granted to levy taxes, lay imposts, &c.? The object to be obtained by this power is very clear. It was to enable the government to raise a revenue to defray expenses, indirect taxes being considered a better mode of raising funds than direct, because they bear most heavily upon

those who have most ability to pay them. That power was likewise given to Congress, to prevent the injustice which would have resulted to the non-importing states, by paying their indirect taxes into the coffers of importing states, and at the same time through direct taxation upon their people, to furnish their quota of the disbursements of the governments. It was not in contemplation of the framers of the constitution, that a power to raise revenue should be exercised to destroy it. The convention of Harrisburg, who met to goad Congress to the late desperate expedient for the establishment of the monopoly of the manufacturers, knew full well, while recommending an increase of duties, that a decrease of revenue would be the *immediate*, and the annihilation of it, the *final* result, if their wishes were accomplished; and gave occasion to the subterfuge used in Congress to evade the question of constitutional power, by rendering it impracticable for the judges of the supreme court to ascertain the true object of the act passed, without looking to the motives of its advocates, which unhappily, as it regards this act, they do not consider themselves authorised to examine.

The constitution declares that the imposts shall be uniform throughout the United States. That declaration was intended to protect the states from any partiality and advantage which might otherwise have been extended to one quarter of the country, by making the imposts greater at one port than another. What is the difference in effect, if you insist through that power to levy such excessive duties as will give the interest of one part of the community, an advantage over that of another; though that end is not accomplished by imposing greater duties at some ports than at others, yet you desire to attain the same object by their excessive imposition and increase.

Is the right to protect manufactures, claimed under the power to regulate commerce? It is true Congress has the power to regulate commerce with foreign nations, and among the several states, and with the Indian tribes. This power was given to enable Congress to carry into effect the commercial treaties with foreign nations, and render them uniform throughout all the states, to save the perplexity which would have arisen by each state retaining the power of making its own commercial regulations with foreign nations, and with the states, which, without such a grant of power, would not have been effected. That clause was never intended to vest the right, nor can it be legitimately inferred from it that Congress had the power of legislating upon the internal concerns and interest of the people of the several states. It was only intended to regulate our relations between the whole of the states as one body, and foreign governments, and our commerce with each other as states, or independent communities. If under that grant of power, the right of passing laws for the protection of manufactures can be justified, a continuance of the principle, and an extension of the practice, will lead to the entire extirpation of the very commerce which that clause was inserted to regulate. If it be your interest to lay such interdicting duties as to exclude one

article, by the same rule you may exclude another, and go on excluding, until you completely inhibit the importation of every species of foreign manufacture. Should you continue to claim the right of excluding all articles which it is your interest to manufacture, you will not, nor cannot deny the same right to other sections of the Union. We might upon our part, insist upon such a duty on sugar, rum, and molasses, as to prohibit the importation of those articles; and though we might not be able at once to furnish a sufficient supply for the consumption of the whole Union, it would be no decisive argument against us, since it is always in our power to retort upon you the favorite answer of the manufacturers—"It is true we cannot at present furnish what is required for the consumption of the nation, and the people will pay higher for these articles of necessity; but give us our own prices long enough, and we shall furnish them much cheaper than they are now afforded, to the great benefit of the country, and the encouragement of American industry."

Other sections of the country having the same right, would require prohibitory duties upon their favored products or manufactures; and if protection be granted to *all*, as justice requires it should be, if granted to *any*, the inference is irresistible that the commerce with foreign nations, so far as regards their importations, would be at an end; it follows as a necessary consequence, that all foreign commerce will be entirely cut off. Money is the only medium of exchange, and no nation will find it to be to her interest to buy our exports unless we receive theirs in return.

If the system cannot be justified in the *general*, upon the *principles* of our government, it cannot be in *part*.—It is not reasoning upon extreme cases, and if it were, it is not an illegitimate test of constitutional principle.

Whenever a power is exercised by Congress, which is not granted, it is an assumption of authority by that body, dangerous to the liberties of the people, since every assumption of power is an act of despotism.

The intention and letter of the constitution were, to prescribe within certain defined limits, the power of the general government, and not to consolidate the power of the state sovereignties. If the latter was the real government, no matter how arbitrary and partial might be its measures, they would nevertheless be the law, as the majority would rule. But while the constitution is to regulate the power of Congress, any act which is in contravention of that instrument is illegal, and not binding even though it may have been passed unanimously, and twenty-three out of twenty-four states should assent to it. "To provide for the general welfare," is an expression in the constitution by virtue of which it has been contended, that any law would be constitutional, which in the *opinion of Congress*, would redound to the general interest. From an inspection of the instrument, this, so far from being a grant of power, is the designation of one *object* to be effected by powers specially and distinctly granted in the constitution. The convention never

intended to grant power by this clause; if it had, there would have been no need of any other article in the constitution. If it were standing alone, and received the construction given to it by those who claim unlimited control for the national councils, it would of itself render every article in that instrument nugatory—Indefinite in its extent, it would give, if it gave any thing, unlimited authority. Establish its claim as an authoritative article, and it will justify any thing and every thing which Congress might pretend to believe would promote the general welfare.

The interest of one state was never intended to be sacrificed to that of the others—Climate, soil and custom, have prescribed different occupations and pursuits suitable to the situation and condition of each. If it be the interest of any part of the confederacy, to manufacture, let them pursue those vocations in peace to which their genius and circumstances direct them: it is not though expected that they will by legislative enactments, continue to require the agriculturalist to make sacrifices to enhance the products of their labour. Such pretensions are foreign from the spirit of the compact. We have as much right to lay a prohibitory duty upon the hogs, horses, and mules of Kentucky and Ohio, to promote the encouragement of raising those animals, as the general government has to prohibit foreign goods to promote the manufacture of them in a particular section; or that Kentucky should vote for a duty on bagging to compel us to pay a greater price for the article. The whole prohibitory system is founded in error, and humanity weeps over the fading patriotism of those who sordidly pursue their own interest at the expense and utter sacrifice of the holy principles of liberty and the constitution.

The people of Georgia are fully sensible of the impositions which are heaped upon them by the extravagant constructions and perversions of the powers delegated to the United States, and regret that they have causes of complaint too well founded to be removed by argument, or to be softened by explanation. Let us recur to the inducements which were held out, the great objects to be attained by our political connexion. The constitution was adopted to form a more perfect union, establish justice, ensure domestic tranquility, to provide for the common defence, promote the general welfare, and to secure the blessings of liberty to ourselves and posterity. Can it be said that the anticipations of our forefathers, who looked to effect these objects by the instrumentality of the constitution, are realized, when our interests are made subservient to a growing monopoly? Is justice established, when we are required not only to buy the products of your labor at your own price, but to suffer by the same compulsory arrangement the loss of a great market, and a depreciation of price for our own? Is it reasonable to expect a more perfect Union, when the interest of a portion of that Union is wholly disregarded, and made the subject of depredation by the other part? Can tranquility be ensured among a people who are reminded of their injuries and oppressions by repeated infractions of their compacts and solemn engagements?

Is the general welfare promoted by a studious and systematic course of legislation, which has for its object the promotion and encouragement of a particular branch of industry at the expense of all others? And will the blessings of liberty to ourselves and posterity be secured, if the violence of irritated feelings, and a sense of that misery and degradation which, if the limitations of the constitution are not more strictly observed, must be our portion, should produce such convulsions as to rend in twain the temple of liberty?

When we entered the confederacy, it was for the protection of our rights, and we were particularly cautious to grant no power by which they might be either disregarded or abused; and if instead of that protection, they are abandoned, and made the sport of the self-interest of our nearest and dearest friends, we must, as we did under British domination, seek an effectual remedy. This we shall be compelled most reluctantly to do, if these partial and unconstitutional measures are perserved in, without fear of imputation from our contemporaries, or the impartial scrutiny of posterity. But does not the heart of philanthropy sicken at the prospect, that the American constitution, justly esteemed by the friends of freedom throughout the world, as the great monument of the genius and patriotism of the last century, is in danger of being torn by manufacturing cupidity from its high place, while some of the immortal men whose hands aided in its elevation, are yet on earth to witness and deplore the sacreligious deed.

*Resolved,* That the Governor be requested to forward a copy of the foregoing remonstrance to the Governors of the several states.

Approved, December 20, 1828.

JOHN FORSYTH, *Governor.*

*In the Senate, January 31, 1829.*

The Secretary of the Commonwealth being introduced, presented a message, accompanied with documents, from the Governor, which were read as follow:

*To the Senate and House of Representatives of the commonwealth of Pennsylvania:*

GENTLEMEN,

I have the honor of transmitting to you a copy of a letter from the president of the Chesapeake and Ohio canal company, together with a copy of a report to the legislature of this state; as also a copy of an abstract of the receipts and expenditures, and a statement of the stock and funds of said company.

J. ANDW. SHULZE.

*Harrisburg, January 30, 1829.*

*Washington, District of Columbia,*

*January 23, 1829.*

SIR,

I have the honor to communicate a report to the legislature of Pennsylvania, which it is rendered my duty to make by the ninth section of the act of the commonwealth of Pennsylvania, entitled "an act to incorporate the Chesapeake and Ohio Canal company."

I seize the occasion to subscribe myself, with great respect,  
Your most obedient and humble servant,

C. F. MERCER, *President*  
*of the Chesapeake and Ohio canal company.*

*His Excellency, J. ANDW. SHULZE,*  
*Governor of Pennsylvania.*

*To the Senate and House of Representatives of the commonwealth of Pennsylvania, in General Assembly met.*

The undersigned, president of the Chesapeake and Ohio canal company, in behalf thereof, and in conformity with the ninth section of the act of the state of Pennsylvania, "incorporating the Chesapeake and Ohio canal company," most respectfully reports to your honorable body, that the progress made by the company, in constructing the Chesapeake and Ohio canal, will be found, in the tables already forwarded by the undersigned, to his excellency the Governor of Pennsylvania, giving a minute statement of all the contracts, now in a train of execution, on the first forty-eight miles of the canal, that the further progress of the work has been arrested by an injunction sued out of the chancery court of Maryland, at the instance of the Baltimore and Ohio rail-road company, but that the company confidently expect a termination of this controversy, by the ensuing mid-summer, after which, the works on the canal, for the further prosecution of which due preparation will then have been made, will be extended, with the



greatest possible despatch, up the river Potomac, along the one or the other shore thereof, according to the issue of that controversy.

The undersigned has hereto annexed and certified, according to the provisions of the act aforesaid of the state of Pennsylvania, an abstract of the accounts of the company, down to the 20th day of the present month. More fully to explain the same, he begs leave to add, that a large portion of the stock of the Potomac company, and some part of the debts due by that company, at the period of the surrender of its charter, have been subscribed to the stock of the Chesapeake and Ohio canal company.

As this portion of the stock of the new company will not be productive of any income to its holders, till the stock paid for, in current money of the United States, shall have netted 10 per cent. per annum, to the proprietors, the amount of the former is not embraced in the accompanying abstract. It is expected, ultimately, to comprehend all the stock of the Potomac company, in amount exceeding three hundred and ten thousand dollars, and nearly or quite all the debts, which were due by the company, amounting to the further sum of one hundred and seventy-five thousand dollars.

The stock payable in money, will be seen to exceed three millions six hundred thousand dollars, and is expected, with the subscription anticipated from the commonwealth of Virginia, to enable the company to place the eastern section of the canal under contract, during the present year, and to prepare for the commencement of the western section at no distant date.

This expedient arrangement, however, will depend for its success, on the decision of your honorable body, upon the prayer of that memorial, which the president and directors of the Chesapeake and Ohio canal company, have recently had the honor to recommend to your favourable regard.

C. F. MERCER,

*President of the Chesapeake and Ohio canal company.*

*Office of the Chesapeake and Ohio canal company, }  
City Hall, Washington, D. C.*

January 23, 1829.

**ABSTRACT of Receipts and Expenditures and Statement of the stock and funds of Chesapeake and Ohio canal company, to the 20th day of January, 1829.**

1829

Jan. 20. Amount of instalments paid upon subscriptions to the capital stock, of the Chesapeake and Ohio canal company, to this date,

338,711 50

Received from the late treasurer of the Potomac company, for unclaimed dividends due to sundry stockholders of said company,

366 50

Received for tolls—Potomac company,

1,769 00

Received from sundries, charged to sus- pense account,	189 00
Capital stock, payable in money being exclusive of the Potomac stock, 36063 shares of \$100 each,	3,606,300 00
Amount of instalments called for, to the 3d of March, 1829, of which two are not yet due.	540,945 00
Paid in on account of instal- ments due,	338,711 50
*Due for returns not receiv- ed before delinquencies,	21,918 50
Amount of 6th and 7th in- stalments called for, not yet due,	180,315
	<u>\$540,945 00</u>
	<u>\$ 341,027 42</u>

\* The greater part of the delinquencies arise from the absence of  
returns from distant receivers and remote stockholders.

1829

Jan. 20. By amount of expenses of commission- ers,	\$ 232 05
By amount in the hands of commis- sioners,	19 00
By amount requisitions drawn upon the treasurer, which have been pre- sented and paid,	32642 33
Contingent expenses.	1328 45
Balance in the hands of the commissioners for superintending subscriptions, to their credit in the office bank U. S. Washington,	1431 04
Do. to the credit of the Chesapeake and Ohio canal company, in the office of the bank United States,	172,914 81
Bank of Washington,	2584 01
Patriotic bank,	11983 50
Bank of Alexandria,	6156 91
Bank of Potomac,	13333 00
Farmer's bank of Alexandria,	4500 00
Mechanic's bank of Alexandria,	3100 00
Farmers and Mechanic's bank, Georgetown,	35418 35
Do Contingent fund,	1671 55
Do Unclaimed dividends	366 30
Do Late Potomac company	1760 62
Do Tolls do	

# CHESAPEAKE AND OHIO CANAL.

385

Office bank of the Valley, Charlestown, Va.	773 50
Hagerstown bank,	803 00
5 per cent. stock of the state of Maryland,	50,000 00
	<hr/>
	306,805 59
	<hr/>
	<u>\$841,027 42</u>

Office of the treasurer of the Chesapeake and Ohio canal company, January 20, 1829.

C. SMITH, *Treasurer.*

*In the Senate, February 31, 1829.*

Mr. Burden, from the joint committee appointed to examine into the concerns of the bank of Pennsylvania and Philadelphia bank, made the following

### REPORT:

That they proceeded to Philadelphia, and examined on oath such directors, officers and others, as they deemed necessary for the objects of their appointment. The result of the examination they now present to the House.

Against the bank of Pennsylvania public opinion had been much excited, and the belief was general that some of the directors and officers had combined with brokers and others, to take the loan of two millions, to the injury of the bank and to the government. It was also the impression, that mismanagement of the institution in stock operations, had so diminished its means, that it possessed little capital for banking business; the committee therefore felt it an imperious duty to subject the bank to a rigid scrutiny.

During the investigation, a committee appointed by the bank, furnished all the information required, (except in one instance hereafter mentioned) and afforded every facility to the joint committee.

When facts connected with accounts of private individuals were examined, your committee contented themselves with an investigation sufficient for them to arrive at a conclusion; but in no instance did the committee consider it their duty to report the names of private individuals, except where public advantage required it.

In the examination into the state of the bank of Pennsylvania, the objects were: *First*, To ascertain the circumstances connected with the loan of two millions, and whether the taking of that loan had injured the bank, or had deprived the government from obtaining a premium. *Secondly*, The management of the concerns of the bank, and the actual state of the institution.

### THE LOAN.

On the 20th of May, 1828, public notice was given by the secretary, that agreeably to the act of 24th March, of that year, proposals would be received at his office, at Harrisburg, until 5 P. M. of the first of July, 1828, for loaning to the commonwealth, for canal and rail road purposes, the sum of two millions of dollars; the principal to be reimbursable at any time after the first December, 1853, certificates of stock to be transferable, bearing an interest of five per centum per annum, payable half yearly.

On the first July, 1828, proposals were received from banks and individuals, as follow, viz:

Isaac Wayne, of Chester county, \$ 3,000, at 2 per ct. premium,  
John Shields, of Philadelphia, 2,000, at 3½ premium.

The Farmers' Bank of Lancaster for \$50,000, without premium, provided that the temporary loan of \$ 50,000, recently made, should be transferred to the permanent loan.

The York bank, for \$ 20,000, at par.  
Lancaster bank, 25,000, at par.

The Bank of Pennsylvania offered to take the whole loan at par, or if that offer was rejected because of better bids, then to pay for the whole stock one per cent. above the value of the premium on so many of the best bids from other sources as, when taken together, should not be less than \$ 800,000 nor more than \$ 2,000,000, provided that the bank should not thereby pay more than \$ 101 for every \$ 100 in stock; these offers not to apply to less than the whole stock.

The offer of the Bank of Pennsylvania was accepted, and they took the whole loan at par.

On the seventh of August, of the same year, the public improvements of the state demanded a larger amount of money than had been anticipated, and the bank was called upon for earlier instalments than had been agreed upon. The bank promptly met the exigencies of government, and advanced \$ 293,098, on account of future payments.

On the 16th September, 1828, another call was made upon the bank for an amount of from \$ 100,000 to \$ 200,000, in anticipation of future instalments of the loan in October and November, in addition to the monthly instalments fixed by a previous arrangement.

On the 22d September, the bank could give no satisfactory answer to the government; but on the 8th of October they advanced \$ 50,000; on the 8th of November \$ 10,000, and on the 19th of the same month \$ 97,000.

On the 21st November, 1828, a further advance in anticipation was called for of \$ 152,000, of which \$ 65,000 was wanted immediately, to meet the demands on the treasury. On the 1st December, 1828, the cashier informed the Governor that on Wednesday the board of directors did not think the state of the bank sufficiently favorable to justify the advance of so large a sum, and that the subject had been twice postponed. On the 3d of December the bank advanced \$76,000, in anticipation of and in full of the instalments payable on the first of January, 1829.

The whole correspondence between the government and the bank shows, on the part of the former, pressing demands for money at earlier periods than the agreement called for, and a disposition on the part of the latter to subject themselves to considerable inconvenience to meet the exigencies of the state.

Much censure has been cast upon the institution, respecting the

investment in the loan which your committee after a scrutinizing investigation believe to be groundless. That the loan could have been obtained from individuals, and that a good premium would have been paid upon the stock, had proper measures been taken on the part of government the committee have every reason to believe, but they much doubt whether the loan would have been taken at all under the arrangements for disposing of it, had not the bank made the offer and used considerable exertion.

On the 4th of April, 1828, the office of commissioner of loans was created with power to issue and sign certificates of stock pertaining to the loans of the commonwealth.

On the 21st of June, 1828, the Governor offered the commission to Joseph P. Norris, Esq. president of the bank of Pennsylvania, who declined accepting; and on the 18th of July of that year Elihu Chauncey, Esq. cashier of the bank of Pennsylvania was appointed, who by the approbation of the board of directors accepted the appointment on the 30th of July.

As all the previous loans had been contracted for with corporations, and as individuals who offered for portions of them had not been accommodated, prudent men would not be likely to look for a change of the policy and would naturally expect that banks would be favored in preference to individuals, and that there was little use in making application; besides persons investing money prefer being on the spot where the arrangements are to be made. Public notice for proposals to be received at Harrisburg would scarcely be noticed, and if so, would not be attended to. If books had been opened in Philadelphia, or if the stock had been put up at auction there, in amounts suitable to the state of the market, a very different state of things would have resulted.

A commissioner of loans had been appointed, but at too late a period to be so useful as could have been wished, and with powers too restricted to meet the occasion; with the title of commissioner, his duties were no more than those of a mere transfer clerk, and such was the want of system connected with his office, that so late as October, the holders of \$141,151 of stock were prevented from sending it to England, from a delay at Harrisburg in forwarding the certificate.

In the loan of \$2,000,000, the directors of the bank were unwilling to invest, and they were only induced to offer on account of the circumstances in which they were placed. A majority of them believed that unless the bank offered for the loan that it would not be taken. The consequences of which would have been highly detrimental to the government and to the bank. The latter held a large amount of state stock which they would have found a difficulty in disposing of, or of effecting sales without great sacrifice and consequent injury to the institution. Under these impressions the board agreed to offer for a portion. No director wished to increase the amount, and the majority viewed it not as a measure of speculation, but as one of protection.

A committee was appointed to take the loan, clothed with the same powers that similar committees had exercised, and nothing was left to their discretion but the manner in which they should take, and the price which should be paid. The proceedings of the committee were reported to and approved by the board. The cashier acted under the direction of the committee, and executed the instructions to their entire approbation. He called on the capitalists of the city to induce them to participate, and made propositions to a number of monied corporations, to most without success; and finally the loan was taken as follows:

Bank of Pennsylvania,	\$ 514,200
Bank of Chester county,	25,000
S. & J. Nevins & Co.	80,000
Wm. Brown,	250,000
E. & W. Coleman,	50,000
James Paul,	61,000
John Brown,	8,000
Daniel Caldwell	3,800
Thomas & J. G. Biddle,	500,000
Robert Ralston,	90,000
William Sansom,	50,000
Caleb Brinton, jr.	23,000
T. & S. Wagner,	25,000
Norris Stanley,	12,000
Benjamin Chew,	8,000
	<hr/>
	\$2,000,000

The participators in the loan obtained their portions on the same terms as the bank of Pennsylvania. From the first stock paid in, security was retained by the bank for the subsequent payments, and no stock was transferred until payment was made, excepting \$ 113,530, due on the first January, 1829, all the payments were made when the joint committee was in Philadelphia; and it does not appear that accommodations had been given to the participators to enable them to meet their stock engagements. The whole amount of *business* paper discounted for them is \$ 36,539 68; of this \$ 25,350 has been paid; the remainder was not due when the committee left the city. The only accommodation note was for \$ 2000; the renewal was for sixty days, at the expiration of which it was paid.

Your committee, notwithstanding they believe that under proper arrangements the loan could have been obtained on better terms than it was, are of opinion that no blame ought to be attached to the bank, as that institution used every exertion to have the loan taken; and no evidence was adduced to show that the bank had used any means to prevent any corporation or individual from offering for the loan, or from participating with them in the investment; and much credit is certainly due to the board of directors for the promptitude with which the repeated demands of the government for money in anticipation of instalments were met.

Whether the pressure on the bank was to any great degree caused by its stock investments is problematical, as so many causes operate on the money market. Some of the participators were brokers, who are the agents of others for the purchase and sale of stock, constantly attending to the changes and fluctuations of money, and making it the business of life to watch the causes at home and abroad which operate on the market, they are better qualified to act with promptitude and to make their transactions profitable, than a corporation, where many persons are to be consulted, and which, from its very nature, is slow in operation. It is not, therefore, a matter of wonder that in the disposal of stock, brokers obtained a better price than the bank, and had the start in the market.

The amount of state stock sold by the bank in the city, since the loan of two millions was taken, is \$ 221,842 78; and the prices obtained since the first of August (the buyers taking the interest from that date) have averaged 108.39. This is but a small advance, considering the difference between transactions for large and small amounts.

Mr. Thomas Biddle, a broker, stated on his examination, that within a week after the contract, the stock sold at  $1\frac{1}{2}$ , and within a month for  $4\frac{1}{2}$  above par; the amounts were 40,000, 50,000, and 60,000.

Before taking the last loan the bank sent some stock to London, for sale. The limit they fixed was at a price not less than 95 per cent. in London; the rate of exchange here was at that from 110 to 111.

On the 25th October, the Messrs. Barings, of London, were instructed to sell at the current market price, but not to sacrifice by forcing it in market. Bills were then selling at about 111.

Of the state stock \$ 107,000 have been sold in London, of which \$ 24,000 was sold at  $96\frac{1}{2}$ , and the remainder at 95. The highest rate at which the bank has sold its bills on Messrs. Baring and Co. is at  $111\frac{1}{2}$ ; the lowest rate  $108\frac{1}{2}$ . The nett is not ascertained, as the bank has not received Baring's account current. The bank has, however, sold at from  $3\frac{1}{2}$  to  $7\frac{1}{2}$  above par.

The bank of Pennsylvania at present has on hand but one certificate of the late loan, amounting to \$ 207,832.

Taking every circumstance into consideration, your committee are of opinion that the investments in the loan of two millions has not proved profitable to the bank. That the large amounts of money advanced in anticipation of instalments, to aid the state, have tended to prevent the bank from discounting so much paper, as under other circumstances would have been done, your committee have no doubt; but they are not of the impression that this cause has operated to any great extent.

That the bank has, for want of means, been compelled in some cases to diminish the amount of its discounts, is a fact well established. This state, which is called a pressure, is not uncommon



with banks possessing the best credit; and in the present case does not appear to have been confined to the bank of Pennsylvania, but to have been general in its operation, and on this bank it was very small. At the time of the pressure specie was exported to Europe in large quantities, and the banks had to husband their funds.

The want of means to discount business paper in the bank of Pennsylvania has been attributed to the large loans made to brokers. In one year \$189,000 was discounted for one broker. Such loans are made on pledges of stock at five per cent, being less than that of ordinary business paper. As brokers are to a great extent the agents for procuring specie for exportation, your committee think such loans were injudicious.

One of the directors, Mr. John T. Sullivan, stated that one broker had received during one year \$214,526, at five per cent. whilst good business paper amounting to \$1,500,000, which would have paid 6½ per cent. had been rejected. Whether his opinion of the quality of all this paper be correct or not the joint committee do not pretend to determine. There was sufficient evidence to convince them that brokers had been indulged to too great an extent. Loans to them on pledges of stock are however small at the present time amounting only to \$7000.

The committee of the bank stated that occasionally when money was abundant, it has been the practice of the president to discount notes. This is a power which the directors had no right to delegate. It gives an individual the power of granting and renewing loans, at pleasure to a great extent, and places at his disposal and control a large amount of the capital.

The board in delegating such power have clearly violated the 11th section of the supplement of 1794 to their charter, which expressly provides "that seven directors shall constitute a board for the purpose of transacting the discount business of the bank."

To this violation of the charter may in a great measure be attributed the fact, that when the curtailment of discounts fell on the business paper of the merchant, loans on stock pledges to brokers and speculators were but little effected; it was alleged by one witness that the discounts to the merchants were curtailed to prevent them from exporting specie; but brokers are the principal agents in collecting money for exportation, and should not have been favored.

The general statement of the bank and its accounts with the branches, appended to the report, will show the state of the bank. For information on points contained in those documents, the committee refer to the answers of the cashier given on oath, and to those given by the committee of the bank marked

From a careful examination your committee have the satisfaction to report, that they believe the bank to be in a prosperous condition, and that its state of credit entitles it to public confidence.

The number of directors the joint committee think might be reduced with advantage. The state holds three-fifths of the stock,

yet out of twenty-five directors six only are appointed by the legislature. In the United States bank the general government holds one-fifth of the stock, and is represented in proportion. Why the state should be placed in a different position with regard to the bank of Pennsylvania, your committee are at a loss to conceive; and during the investigation, it was apparent that however talented the state directors may be, the paucity of their number makes them mere spectators instead of active promoters of the interest of the stock they represent. Your committee are unanimously of opinion, that should the legislature deem it politic to retain the stock held by the state in the bank, that the directors elected by the legislature should be in proportion to the amount held.

### *Conduct of the Officers.*

On this point the committee have deemed it advisable to condense the testimony given on oath or affirmation by clerks and other respectable citizens.

George Clay, second book-keeper, stated that the cashier's account for the last year up to August, was about five hundred thousand dollars: that since that period it had rather decreased: that the cashier had deposited checks to be placed to his own credit, and drawn money upon them: that checks on other banks had been so deposited: that under certain circumstances, it is customary to receive on deposit checks on other banks, and that such checks always go to the bank on which they are drawn, on the first exchange day, and that those deposited by the cashier had taken that course.

That the cashier had been in the habit of applying cash remittances from other banks to his own credit, instead of to that of the bank by which the remittances were made; and that some such remittances so passed, were not credited on the day when they ought to have been credited, but were in a day or two afterwards credited to the proper bank; that in September, 1828, the cashier overdrew the bank two or three thousand dollars, which was repaid the next day.

William S. Evans, second teller, stated that the cashier had put checks in the drawer and had taken out bank notes for them, which checks were not placed to the debit of any one in this or any other bank until the next morning. These checks were considered the same as money; they were not kept longer than the next morning, except on Saturday, when they were laid over until Monday. The checks were generally on the bank of Pennsylvania. In some instances they were drawn by James Paul, on the bank of the Northern Liberties, for from 8 to \$11,000. In such cases the money was not taken out of the drawer, but the checks generally passed to the credit of the cashier. The witness further stated that the first teller and himself waited upon the president at his residence, in the month of September, and informed him of the

Cashier's conduct: that the president declined giving them any opinion at that time, but told them he would on the next day; when he stated to them that the cashier had the control of the cash, and that he the cashier was responsible for it. The witness stated that since that period the cashier had discontinued the practice.

Benjamin Smith, cashier's clerk, stated that some years ago, when he was assistant clerk, two thousand dollars were collected but were not put to the credit of the bank, but passed to the credit of Elihu Chauncey. One or two days afterwards they were placed to the credit of the proper bank: that such cases had been very numerous and confined solely to the cashier. The witness believed that the practice was unknown to the board of directors.

William G. Govett, runner, stated that in two or three instances, the money he had collected, was not put on the day it was collected to the proper account, but to the credit of Elihu Chauncey. The amounts as nearly as he could recollect were three, four or five thousand dollars. This was done for no one but Mr. Chauncey. The amounts were placed to the proper account in two or three days afterwards.

George R. Smith, first teller, stated that he had frequently paid checks at an early hour in the day, under the expectation, that deposits would be made to meet them before the bank closed. He had frequently paid large drafts to brokers and others—did not know the amount of the cashier's account, but had paid a good many of his checks; the amount of them generally about eight or nine thousand dollars. Sometimes two or three would come in succession. This would go on for two or three weeks, and then cease for months.

Robert L. Pitfield, cashier of the bank of the Northern Liberties, stated that James Paul, a director of the Northern Liberties bank, had frequently deposited Elihu Chauncey's checks in that bank, with an understanding, that he would not draw on them. The witness was not aware they had ever been drawn upon—the usual amount was \$10,000, on an average; had known it more and less, sometimes \$15,000, sometimes \$8000. That Mr. Whitehead had also deposited Elihu Chauncey's checks; their usual amount was \$10,000.

The following question was put to Mr. Edward Biddle, clerk to Messrs. T. & J. G. Biddle, brokers.

"Has your house ever bought of, or sold to Mr. Elihu Chauncey, any stock or notes of hand, or bills of exchange, foreign or inland of any kind whatever?" To this he replied, "They have had occasionally stock transactions with Mr. Chauncey. I do not recollect at the present moment, any notes or bills of exchange—they have had orders to buy stock and sometimes to sell—he sometimes bought stocks for the Pennsylvania bank—he sometimes bought and sold stocks in his individual capacity—we took stock in the last loan for various persons; don't think it proper to divulge the names of individuals for whom we took the stock."

Mr. Joseph Swift, clerk of Biddles', stated that the firm had frequently deposited checks of Mr. Chauncey and others. Those of Mr. Chauncey, were from \$2,000 to \$12,000.

To the testimony, a summary of which is above presented, no counter testimony was offered by the bank, nor by the cashier. The following communication was however received.

*Bank of Pennsylvania, 15th Jan. 1829.*

SIR—The bank committee have instructed me to make to the committee of the legislature, the following communication.

In relation to the evidence which has been brought before you, the object of which, was to implicate the conduct and character of the cashier, we have the satisfaction to state, that we have received from that officer, such full, free and confidential statements and explanations, as are perfectly satisfactory to us; and after full consideration of the subject we have

*Resolved*, That it is not consistent with that confidence, which the bank necessarily reposes in its officers, nor with a proper regard to the interests of the institution, that the cashier should make his explanations a matter of publicity. In the private business of the cashier, the committee do not find that Mr. Chauncey has done what is not allowed to every respectable customer of the bank.

Very respectfully, yours,  
WILLIAM SANSON.

JESSE R. BURDEN, Esq.

*Chairman of the committee of the legislature.*

During the whole course of the examination, the committee of the bank had evinced every disposition to furnish the joint committee of legislature, with information respecting the affairs of the bank; and did not insist on shielding themselves, under supposed constructions of the act of incorporation. Your committee therefore felt in some measure disappointed, when the bank declined giving explanations respecting evidence of facts, the object of which the bank supposed, was to implicate the conduct and character of the cashier. Your committee had invariably assured the bank, that nothing of a private nature would be divulged by them, unless public advantage should require it.

With regard to the evidence, respecting the conduct of the cashier, an expose of facts, and an explanation by that officer, might have enabled the joint committee, to have formed an opinion as to the correctness of his conduct, without imposing upon them the necessity of reporting any thing but the general result of the investigation.

How far the bank may be satisfied with the conduct of their cashier, is a matter with which the joint committee have nothing to do. Their duty was not to ascertain whether the bank was satisfied with the conduct of their officers, but to ascertain what were the acts of those officers.

It is possible that the cashier may have acted correctly, and that he could furnish satisfactory explanations. Your committee would be pleased with such a result. But as they are left to judge altogether from the evidence given, they are of opinion that the conduct of the cashier has been such as is inconsistent with his duty as an officer of the bank.

The testimony of Edward Biddle, taken in connexion with that of the clerks of the bank, and of the cashier of the N. L. bank, lead the committee to believe that Elihu Chauncey has violated the provisions contained in the 18th article of the charter, which declares "that no president or cashier of this bank, shall be directly or indirectly concerned in the purchase or sale of any of the public stock or funds, under the penalty of ten thousand dollars, to be forfeited, one half thereof to the use of the commonwealth, and the other half to the use of the informer; nor shall the cashier be allowed to carry on any other business than that of the bank, under the penalty of five thousand dollars."

The privilege assumed by the cashier, of taking money in the manner stated by the clerks, and of using the funds of the bank without paying an interest for them, opens a door to imposition, which should always be closed. It gives him the opportunity of forming connexions with others, and of engaging in speculations which might involve the bank and his securities to an unlimited amount.

The committee conceive that the bank is too loose in its practice of permitting overdrafts of heavy amounts. Much loss has been sustained; and whilst the committee were in Philadelphia, upwards of \$6000 were paid in this way, which probably will never be repaid.

As a matter connected with the conduct of the officers, your committee state that a loss was sustained, from a deficiency of specie in the vaults of the bank, of \$2000. On the 26th April, 1828, the fact was made known to the board of directors; the report of a committee of investigation is annexed marked B. by which it appears that the deficiency had existed from December, 1825, or January, 1826. The loss was charged to the account of profit and loss. The first teller on examination, stated that during bank hours the key always remained in the lock, and that any clerk had free access to the vault, whether his particular business required it or not.

That a deficiency of such amount should remain unknown for so long a period, and that such carelessness respecting the vault should be permitted, betrays a degree of negligence somewhere, which ought not to exist. Your committee however, believe that more caution will be used in future.

## PHILADELPHIA BANK.

In the examination into the affairs of this bank, the objects were to ascertain the general management of its concerns. As no suspicions were entertained that its business had been conducted improperly, and as the inquiry into the affairs of the bank of Pennsylvania had occupied more time than had been anticipated, your committee contented themselves with a general examination, sufficient however to satisfy them of its state.

The committee refer to the annexed documents containing

1. The general statement of the bank.
2. The statement of debt, due from the branches.
3. Correspondence.

The information contained in the above, together with that furnished by the committee of the bank, has satisfied the joint committee that the mode of conducting the business of the institution is conducive to its interests and prosperity. The proportion of accommodation paper is comparatively small, and the capital is profitably employed in proper banking operations. The mode of discounting notes is that prescribed by the seventh section of the charter; over-drafts are not permitted by the bank.

The contingent fund amounts to \$60,500, and is created by a reservation of the profits of the bank, and is intended to cover any losses which may be sustained.

In the course of the examination, the bank declined answering a question relating to the amount of money loaned to directors, under a construction which they put on the 21st section of the act of incorporation, relating to the accounts of private individuals. The document No. 5, contains the correspondence on the subject. As the bank finally answered the question, and virtually conceded to the construction put on that section of the act, the committee decline entering into detail on the subject. They are clearly of opinion that the accounts of private individuals, which the law prevents a committee of legislature from examining are only the accounts of cash deposits; all other accounts are open to the inspection of every director and ought to be to a committee of legislature. If the construction put upon this clause by the bank, be the true one, then there is little use of the appointment of a committee, as a correct view of the affairs of the bank could not under such circumstances be ascertained.

In closing the report of the affairs of the bank of Pennsylvania and of the Philadelphia bank, the committee respectfully offer the following recommendations to the legislature.

1. That in the passage of any act to extend the charters of any banks in which the state holds stock, a provision shall be inserted that the legislature shall elect a number of directors in proportion to the number of shares held by the state.

2. That a committee appointed by either branch of the legislature to examine the state of a bank, shall have power to examine all accounts except those of cash deposits of private individuals.

3. In the examination touching the loan of two millions, your committee were fully satisfied that a premium of considerable amount was lost to the state, from the want of system in the financial operations of the government. They would suggest the propriety of such an extension of the powers of the commissioner of loans as would enable him, in such manner as the legislature, in its wisdom, may deem safe and proper, to dispose of stock in such amounts and at such times as may be profitable to the state. Such an officer should have a competent salary and a per centage on the premiums obtained, as his duties would preclude him from attending to any other business than that of commissioner. It is impossible for the executive at the distance of a hundred miles from the money market, to know its state, and to dispose of stock advantageously. The subject of loans is one intimately connected with the advancement of the interests of the commonwealth, and inseparably connected with its credit; and such a system should be adopted as would prevent the government from depending on corporations for money in anticipation of instalments.

Until within a very few years the monied transactions of the state were so simple, that little or no difficulty was experienced in conducting them. The government has however, assumed a new position. The extensive public works of internal improvement require large amounts of money, and the settled policy of the state is to raise funds for the construction of canals and rail roads, by borrowing. This state of things requires from the legislature new regulations. In a little more than four years the public debt of the United States will be paid off, and the holders of its loans will have forty millions to invest in some other source of profit; and an improvement in the system of finance by this state which shall preserve public confidence, is only required to obtain loans on such terms as will enable the government to complete the objects so desirable to the people.

## BANK REPORT.

## PHILADELPHIA BANK.

The committee of the bank laid before the committee of the legislature a statement of the affairs of the bank, up to the 3d November, 1828.

## STATEMENT.

*Philadelphia Bank, November 3, 1828.*

## DR.

To amount of capital stock,	1,800,000
Sinking fund	59,000
Reservation fund, to meet subscription to the Chesapeake and Delaware canal	\$2,000
Profit and loss account	43,319
Notes in circulation	301,175
Dividends unpaid	10,864
Discounts received	59,031
Due to foreign banks	145,343
do city banks	26,162
Depositors	392,172
	<hr/>
	<u>32,869,066</u>

## CR.

By amount of bills discounted	1,805,777
Of debts outstanding at Washington and Wilkesbarre, secured by bonds, mortgages and judgments	174,216
Subscription to Chesapeake and Delaware canal	100,000
Loan to do do	50,000
do Union canal	20,000
Philadelphia bank stock	243,274
Pennsylvania 5 per cent	19,794
Monongahela bank stock	3,600
Turnpike	500
	<hr/>
Due from foreign banks	267,168
do city do	39,354
Specie on hand	8,561
Notes of other banks	143,846
	<hr/>
	189 665
	<hr/>
	333,011
Real estate	12,740
Banking house and lot	50,000
Expenses	8,232
	<hr/>
	<u>32,869,066</u>



## QUESTIONS AND ANSWERS.

1st QUESTION. Are the deposits specie deposits?

REPLY. The deposits are specie deposits or notes of other banks paying specie, and the item deposits are specie deposits.

2nd Q. Is money ever loaned without the consent of the president and four other directors?

R. A committee of finance used to discount. It consisted of six directors, and they never loaned money to *directors*, and the cashier makes no loans; and no money has ever been lost that was loaned by the committee of finance, or by the officers of the bank.

3rd Q. Are loans ever made to brokers or others on pledges of stock?

R. Yes.

4th Q. What amount of bills discounted are accommodation paper?

R. Amount \$238,680.

5th Q. Are the notes of "other banks," in your statement, considered to be good banks, paying specie?

R. Yes.

6th Q. To prepare for the annual statement to the legislature, is ever money borrowed directly or indirectly from corporations or individuals, or passed as a deposit. If so, what amount and from whom?

R. None.

7th Q. Are loans thus made by the president and cashier, without the knowledge of the board of directors and committee of finance entered in the general discount ledger, and laid on the directors tables, and brought over for the inspection of the board of directors at the next discount day succeeding such loans?

R. Invariably—agreeably to resolution.

8th Q. Are the brokers or other persons allowed to overdraw the bank between the hours of 9 A M and 3 P M?

R. Not to our knowledge.

9th Q. Do your stock investments diminish the amount necessary for proper banking operations?

R. No.

10th Q. What is the nature of and state of the contingent fund, its use and object?

R. It is a reservation from the profits, out of the earnings of the bank not specifically invested, and was intended in the first place to meet any losses that might arise at the Washington and Wilkesbarre branches, and then any other that might occur. Its present amount is \$60,500; \$1500 has been added since the statement from reservation on the dividends.

11th Q. Has any dividend been made which would impair the capital stock of the bank?

R. No.

12th Q. Of the amount due from *foreign banks*, what amount is considered good, bad or doubtful?

R. All good.

13th Q. Are *deposit accounts* of individuals, which are not allowed to be examined by individual directors, considered the same as *discount accounts*, which are open to the board of directors, by the means of the book called the telegraph or of the discount ledgers.

R. There are but one set of books, in which accounts are kept with customers of the bank; access to these is not permitted by individual directors.

An account of every note discounted by the bank, is exhibited to the board of directors every discount day, and to this every director has access, and from which he can ascertain the particulars of when and for whom it was discounted, whether a director or not.

14th Q. Would the Philadelphia bank have taken any part of the late state loan of \$2,000,000, had she had an opportunity. If so, at what rate would she have taken it?

R. The Philadelphia bank had at times pretty full employment for their money, and on an informal inquiry of them, whether they would join with, or come in under the bank of Pennsylvania, in the offer for the loan, it was concluded not to do so. If however, the Philadelphia bank had supposed that the loan would have been taken at par, they would have, as a matter of speculation or profit, been willing to have taken a part, but not as a permanent investment, as they then found no difficulty in obtaining 6 per cent. per annum, for whatever money they had to loan.

The committee examined specie in vault, and found the same to correspond with the answer given by the committee of bank directors.

15th Q. Are the bonds, mortgages and judgments, outstanding at Washington and Wilkesbarre, good?

R. Amount due from the branches on the books of the bank at this time:

Washington	\$91,562 00
Wilkesbarre	83,387 00
	<hr/> 174,949 00

# BANK REPORT.

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Debts considered good at the Washington branch.

Principal	57,361 00
Interest	4,241 00
Estimated value of real estate bought by the bank to secure debts	84,500 00

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\$96,102 00

Debts considered bad at the Washington branch	21,902 00
do interest	2,750 00

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\$24,652 00

Wilkesbarre branch.

Debts considered good	78,559 19
do doubtful	4,175 45
do bad	6,159 43

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\$88,894 07

Interest esteemed good	15,443 36
Doubtful	1,693 53
Bad	1,871 85

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19,008 76

Total am't. of principal and interest considered good \$94,002 53

This valuation and estimate were made in 1827; since then in point of security, the debts have not essentially changed. There has been some change in amount, as moneys since then have been received on account of these debts.

All the debts at the branches at Washington and Wilkesbarre, it is supposed are secured by judgments, mortgages, or by the purchase of real estate by the bank, bought in by them at different times at sales made by sheriff, generally on executions issued at the suit of the bank.

**Q. CAMPBELL, Cashier.**

Mr. James J. Skerrett, first teller, appeared, was affirmed, and answered queries respecting the amount of specie in vault, and as to its being all gold and silver coin contained in the boxes and confirmed the answers made by the committee of bank directors.

16th Q. What amount of debt, if any, is due by stockholder directors and what amount of debt, if any, is due by the state directors, in what several years did those debts accrue and what amount in each year respectively for the last five years?

R. There is no debt now due and unpaid by any director of the Philadelphia bank.

17th Q. What amount of specie was there in the vaults of the bank on Saturday morning, twenty-seventh December, and did all

## BANK REPORT.

the boxes in the vault of the bank, as shewn to the committee of the legislature on that day, contain silver coin?

R. Yes; and the amount as stated in the statement.

18th Q. Of the specie on hand what amount is gold and what amount is silver?

R. Silver,	112,378
Gold,	1,291

19th Q. What amount of salaries are paid by the Philadelphia bank to the different officers of the institution, specifying the amount of each officer.

R. Philadelphia Bank salaries, December 29th, 1828.

President,	\$ 2000
Cashier,	2500
First teller,	1500
Second teller,	1100
One book keeper,	1000
Three do each \$800,	2400
Discount clerk,	800
Note clerk,	900
Assistant clerk,	600
Runner,	650
Porter,	500
One watchman,	200

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\$ 14,250

20. Is there any debt *not due* by any state or stockholder direct or unpaid at this time?

There are notes not due which have been discounted by the bank for directors as for other persons.

21. Have you a book called the *telegraph*, and are you willing to exhibit the same to this committee?

We have one. It contains individual director's account, and therefore we are unwilling to exhibit it.

22d Q. Do the directors of the bank get greater accommodations, in proportion to their means, than other customers of the bank.

R. No.

23d Q. Has the present cashier, or any teller, or clerk, at any time voted at any election for directors, as the attorney, proxy, or agent of any stockholder.

R. No.

Q. 24. Is there any rule of the bank authorising the president or cashier to loan money without the application to the board or committee of finance?

R. No rule.

The bank committee submitted the following as an answer to question No. 25:

25th Q. What aggregate amount has been discounted for state and stockholder directors?

*Philadelphia Bank, December 31, 1828.*

Board met.—The committee appointed by the board to meet the committee from the legislature, submitted the following question:

“What amount has been discounted for state and stockholder directors respectively?”

Which was taken into consideration.

Whereupon, it was

*Resolved*, That the committee on the part of this bank be authorised to communicate to the committee from the legislature, the aggregate amount of loans made to the directors of this bank.

This aggregate amount is, \$ 111,670.

26th Q. Does the bank of Philadelphia, directly, or through the agency of any person or persons whatsoever, buy or sell, or in any manner trade or deal in their own stock, notes or securities, or in the stock, notes or securities of any other bank or incorporated body, whether of the United States, or of this state, or any other state?

R. No.

27th Q. Are the individual accounts of deposit ever submitted to the board of directors; and if not—why?

R. They are not—being contrary to the 14th section of the by-laws of this bank.

28th Q. What is the nature of the accounts contained in the book called the “Telegraph”; and is that book withheld from the inspection of the board of directors, if required of them?

R. It contains an account of borrowers, (directors) and is open to the inspection of the board of directors of the bank at all times, and is laid on the table on discount days.

29th Q. What amount is expected to be realized out of this statement of \$93,769, from dividends and compromises.

R. At the last dividend, the amount expected to be realized out of this description of debts, was about fifty-seven per cent.

30th Q. What amount of bills discounted by the Philadelphia bank are due, unpaid and protested for non-payment?

R. On the 5d of November last, when the statement was made out for the legislature, the amount of bills discounted, due, unpaid and protested for non-payment was \$93,966. At this time it is \$93,769.

For the estimated losses, a sum deemed adequate, was reserved in the profit and loss account, at the time of making the last dividend.

*Philadelphia, January 1, 1829.*

GENTLEMEN:

In compliance with the directions of the joint committee of the legislature, I have the honor to transmit to you the following copy of a preamble and resolution, passed this day.

Very respectfully yours,

J. R. BURDEN,

*Ch'r joint Com. of Legislature.*

*The President and Directors  
of the Philadelphia Bank.*

Whereas the committee on the part of the Philadelphia bank have declined answering certain queries under a construction which they give to the twenty-first article of their charter; And whereas the joint committee of the legislature, consider that individual accounts referred to in the charter, relate solely and exclusively to deposits, and also believe, that the legislature are not by law prevented from knowing, but have a right to know the amount of money due by the stockholder directors of the bank, in the aggregate, and particularly of the aggregate amount due by directors elected by the legislature. Therefore,

*Resolved,* That the committee of the legislature cannot consistently with their duty, proceed further in the investigation, unless all queries are answered, and all accounts exhibited excepting those only relating to deposits,

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*Philadelphia Bank, January, 6, 1829.*

SIR—The preamble and resolutions of the joint committee of the legislature, enclosed in your communication of the first instant, was laid before the board, and I am requested to furnish you, for the information of the committee, the proceedings of the directors of this bank thereon. As the committee of the bank did not preserve copies of the resolutions proposed by the committee of the legislature, nor the answers to them, I am requested to ask of your committee to favor them with copies of both, that they may put the board in possession of all that passed between the committees in reference to the inquiries into the situation of the bank.

I am, very respectfully,

Sir, your obedient servant,

JOHN READ.

J. R. BURDEN, Esq.

*Chairman of committee of legislature.*

At a meeting of the directors of the Philadelphia bank, the communication from the committee of legislature, appointed to examine into the affairs of this bank, having been read,

The following resolutions were offered and adopted:

1st. That the board respectfully persist in their refusal to make any division in their statement already furnished to the committee, of the aggregate amount of notes discounted for the directors, as called for by the twenty-fifth question.

2d. That the committee appointed by this board to meet the committee on behalf of the legislature, on their declining to communicate information of the borrowings of individuals, whether directors or not, and to permit the inspection of books which contain the borrowings of such individuals, have acted in entire consonance with the opinion of this board, inasmuch as the board consider that the credits given to persons for notes discounted, are as much a part of the accounts of individuals as their deposits, and as such the right of examination or inspection is not permitted under the charter of the bank.

3d. That the board deem it inexpedient to give the information referred to in the second resolution, independent of the right under the charter to refuse it, inasmuch as it would operate greatly to the injury of the bank in various ways, and particularly as its affairs are in as safe a situation as at any former period, such a disclosure would not, therefore, in any way aid the committee of the legislature in arriving at a correct conclusion.

4th. *Resolved*, That the board will view with much regret any determination of the committee to close the further examination of the affairs of the bank, unless they deem the ample information already afforded them sufficient; the board being willing and ready (excepting so far as is above stated) to give every information in their power, as to the assets of the bank, in which they would include all the particulars of the debts considered desperate or doubtful.

Extracted from the minutes.

JOHN READ, *President*.

*Philadelphia bank, January 6, 1829.*

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The following letter was sent to committee of legislature:

The board of directors of the Philadelphia bank acknowledge the receipt of your communication, of the 1st instant, and have to renew their expressions of regret, that there should exist the least difference of opinion between the committee of the legislature and them, as to the construction of any one section of the charter of this bank. They also beg leave to assure the committee, that they still continue to entertain the wish always expressed to them, to give all the information in their power, and have, as they trust, withheld nothing, except what touches the business of individuals, who are the customers of the bank; to disclose the concerns of whom, they believe would do serious injury to the institution, and

be the occasion of withdrawing from it many useful and valuable accounts.

Extract from the minutes—Philadelphia bank, January 12, 1829.

QUINTIN CAMPBELL, *Cashier.*

JESSE R. BURDEN, Esq. *Chairman*  
of the Committee of the Legislature.

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*Philadelphia, January 15, 1829.*

SIR—I beg leave to hand you the enclosed communication, which will answer, in effect, the only question in writing heretofore unanswered. And remain, very respectfully, your obedient servant.

JOS. R. EVANS, *Chairman*  
of the com. of directors of the Phila. bank.

Dr. J. R. BURDEN, *Chairman*  
of the com. of the legislature of Pa. &c. &c.

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*Philadelphia, January 1, 1829.*

SIR—The directors of the Philadelphia bank, chosen by the legislature, having understood that members of the committee of the legislature have expressed their individual wishes that an answer should be given to the whole of question No. 25, proposed to the bank committee, we, as members representing the state, have asked of the board of directors to be permitted, in our individual characters, to furnish the aggregate amount of our borrowings, as required by that question. That permission having been granted to us, we have to request that you will inform the members of the committee of the legislature that the state directors are borrowers in the aggregate, of fifty-three thousand and one dollars.

We are, very respectfully, your's.

JNO. M. BARCLAY,  
J. M. LINNARD,  
R. PATTERSON.

TO JOSEPH R. EVANS,  
*Chairman committee of bank.*



## BANK OF PENNSYLVANIA.

*In the House of Representatives,**December 17, 1828.*

On motion, resolved, that Messrs. Simpson, Wilkins, Workman and Cunningham be a committee in conjunction with a committee of the Senate, already appointed, to examine into the state of the Bank of Pennsylvania and the Philadelphia Bank.

Extract from the journal,

FR. R. SHUNK, *Clerk.**"In the Senate, December 10, 1828.*

On motion, Mr. Burden, Mr. Hawkins and Mr. Wise were appointed a committee to join a committee of the House of Representatives, (if the House should appoint such committee,) to examine into the state of the bank of Pennsylvania and Philadelphia bank, and report the result of their examination on or before the 3d Monday of January next.

Extract from the journal.

JNO. DE PUL, *Clerk.**Heiskill's Hotel, Philadelphia, Dec. 24th, 1828.*

To the president and directors of the bank of Pennsylvania.  
GENTLEMEN,

The committee appointed by the legislature to examine into the affairs of your institution, respectfully inform you that they are now in Philadelphia, and ready to proceed to business, in conformity to the resolution passed by that body, and forwarded to you by the clerks of the respective Houses. Any communication you have to make as to time and place of commencing business, may be addressed to J. R. Burden, chairman of the joint committee, at Heiskill's hotel.

Respectfully yours, &amp;c.

H. SIMPSON,

Secretary joint committee of legislature.

*Bank of Pennsylvania, 24th December, 1828.*

The committee appointed to receive and confer with the committee from the legislature, for the examination of the affairs of this institution, will be pleased to commence the business, at the banking house, at 11 o'clock on Friday morning, or at any other time which may be more agreeable to the gentlemen from the legislature.

I am, very respectfully yours,

WM. SANSOM, *Chairman.*J. R. BURDEN, Esq. *Chairman.**Bank of Pennsylvania, December 24th, 1828.*

The following resolution offered by Mr. Ridgway, seconded by Mr. White, was adopted.

*Resolved,* That a committee of seven be appointed, to meet the committees appointed by the legislature to examine into the state

of this bank, and to furnish them with such explanations and information, as they may think proper.

Whereupon Messrs. Sansom, Preston, Ridgway, White, Brown, Neff, and Leiper were appointed.

Extract from the Minutes.

ATTEST.

E. CHAUNCEY, *Cashier.*

*Bank of Pennsylvania, 27th December, 1828.*

Agreeably to the request in Mr. Simpsons' note of the 26th instant, I now enclose a copy of the resolution of the directors of this bank, appointing a committee to meet the delegation from the legislature. And I am requested to inform you that the committee with the officers of the bank, are desirous to give the most ample information.

Very respectfully yours,  
WM. SANSOM, *Chairman.*

J. R. BURDEN, Esq.

*Chairman of the committee of the Legislature.*

*State of the bank of PENNSYLVANIA, Friday morning, December 26th, 1828.*

DR.

Bills discounted,	2338,836 83	
Do. protested,	524,269 35	
		2663,106 18
Special loan to commonwealth of Pennsylvania		150,595 21
Five per cent stock of do		2036,216 43
Loan to the Union Canal company		50,000 00
“ Schuylkill navigation company		40,000 00
“ Chesapeake and Delaware canal company		10,000 00
Turnpike and Conestoga and navigation stock		8,357 50
Real estate		292,455 22
Expenses		16,677 16
Due by other banks		116,113 41
Notes of other banks		265,495 06
Drafts on the treasurer of the board of canal commissioners		53,252 39
Specie		193,981 63
		<u>\$5896,950 24</u>

CR.

Capital stock	2500,000
Notes in circulation	1051,816 26
Unclaimed dividends	6,511
Due to commonwealth of Pennsylvania	140,427 41
“ other banks	739,975 14
Contingent fund	200,000 00
Profit and loss	190,902 72

## BANK REPORT,

409

Discounts	41,775 43
Depositors	1025,242 21
	<hr/>
	<u>\$5896,950 24</u>

*State of the office of discount and deposit at Lancaster, December 30th, 1828.*

## DR.

To bills discounted	\$18,271 59
ditto protested	7,315 00
ditto in suit	4,002 20—\$29,588 79
ditto receivable	47 38
Bonds	13,519 47
Real estate	13,439 96
Conestoga navigation stock	5,000 00
Columbia bridge company	2,279 75
J. Coney, Cashier	1,030 50
J. Lesley, do	10,891 76
York bank	226 97
Marietta and Susquehanna trading company,	730 00
Expense	4 48
Cash on hand, viz:	
Notes of bank Pennsylvania	\$3,575 00
Sundry banks	24,967 42
Gold, British and P.	248 32
Silver	12,724 46
	<hr/>
	<u>\$448,274 26</u>

## CR.

By balance due bank of Pennsylvania	\$283,727 94
John J. M'Kennan, cashier	3,789 91
Discount received	1,326 26
Money of depositors	159,430 13
	<hr/>
	<u>\$448,274 26</u>

*State of office of discount and deposit, Reading, Tuesday, December 30th, 1828.*

## DR.

To bills discounted	\$43,346 85
Protested	8,290 00
Sued	81,597 68—433,234 53
Judgments	13,245 00
Mortgages	1,490 00
Bonds	6,775 00

## BANK REPORT.

Real estate	17,812 92
Water company	200 00
Expense	89 33
Notes Pennsylvania	18,491 00
City	4,568 00
Sundry	2,756 00
Gold	636 58
Silver	7,657 74

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\$506,956 10

CR.

By balance due bank Pennsylvania	423,561 57
Discounts received	1,716 23
Office of discount and deposit Harrisburg	4,942 26
Deposits	76,736 04

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\$506,956 10

*State of the office of discount and deposit, Harrisburg, Monday evening, December 29, 1828.*

DR.

To bills discounted,	\$ 91,175 87
Alterations banking house,	1,197 14
Expense account,	1,436 68
Due to office Reading,	4,942 26
Due Carlisle bank,	50 03
Cash, notes bank Pennsylvania,	\$ 112,781 71
Harrisburg,	900 00
Carlisle,	3,120 00
Gettysburg,	2,920 00
York,	4,135 00
Chambersburg,	3,615 00
Westmoreland,	605 00
Pittsburg,	325 00
Lancaster,	760 00
City,	60 00
Sundries,	1,454 00

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131,215 71

Drafts to B C Co.

46,931 57

Gold,

4 78

Silver,

17,178 57

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\$294,122 61

CR.

By balance due bank Pennsylvania,	\$112,995 26
Discounts received,	1,502 56
Due to office Lancaster,	10,691 78

# BANK REPORT.

411

Harrisburg bank,	66,997 09
Bank of Pittsburg,	25,810 00
Commonwealth Pennsylvania,	21,044 19
Individual deposits,	55,481 75

\$294,122 61

*State of the office of discount and deposit at Easton, Tuesday evening, December 30, 1828.*

To bills discounted,	\$117,733 85
Expense account,	44 87
Cash on hand, viz: Notes of bank Pennsylvania,	\$6,790 00
Philadelphia,	401 00
Easton,	1,900 00
Northampton,	242 00
Sussex,	1,672 00
Sundry,	1951 56
Silver,	2,536 20
Balance due from Easton bank,	1,811 11
	<u>\$165,082 59</u>

CR.

By balance due bank of Pennsylvania,	\$146,313 24
Discounts received,	650 38
Deposits,	18,118 97
	<u>\$165,082 59</u>

## *Protest of State Directors.*

The undersigned directors, of the bank of Pennsylvania, beg leave to represent that they feel it their duty to express their decided disapprobation with the conduct of a majority of the directors of this bank, in regard to the affair of the purchase of the loan recently created by the state of Pennsylvania, for canal and railroad purposes, as well as with a part of the committee appointed by that majority, and with circumstances growing out of that transaction. When the affair of the loan was first presented to the board for it's consideration, it was done by the introduction of a resolution to appoint a committee upon that subject. This course of procedure, the undersigned thought, was altogether wrong, inasmuch as they honestly believed, and still think, the question ought to have come fairly before the board; whose business it was to decide upon the matter, without the intervention, at that stage of the business, of any committee whatever. But, the undersigned question altogether the power and authority of this board, legally to appoint a committee of the nature and character of the one in question. It is enacted by the 2d section of the act of

February 13th, 1794, "that seven directors shall constitute a board for the purpose of transacting the discount business of the bank of Pennsylvania." They therefore conclude that as it is imperatively required by the act, that the *ordinary* business of the board should be confided to not less than seven, when but a comparatively small interest is involved—that it never could have been contemplated by the legislature, that the *extraordinary* business, involving millions, should be entrusted to four or five. The undersigned therefore, think that the appointment of the committee was altogether illegal, inasmuch as it was contrary to the spirit of, and in contravention of the charter of the bank. An attempt was made to have the question fairly, and as the undersigned conceive, legally decided; but like many other, (as they believe) proper endeavours, the proposition altogether failed. That on the occasion alluded to, a committee of five members was appointed, who, without ever consulting the board upon the subject, either as to the amount the bank ought to take, or as to the price to be paid, negotiated with the Governor for the whole of said loan at par, amounting to two millions of dollars. According to the views and opinions of the undersigned, this was a bold and high handed measure; an unwarrantable stretch of power, and altogether inexcusable; inasmuch as the undersigned believe, it was the duty of that committee, whether legally or illegally appointed, to have first reported back to the board from whom their authority emanated, and to have asked from that board, direction as to the amount to be purchased, as well as to the terms or price the bank might, in its discretion, see proper to give. This unwarrantable assumption of power by the few, to do the business of the many, as the undersigned seriously believe, is highly dangerous as a precedent subversive of all parliamentary rule, and insulting to the understanding and dignity of the board.

That this committee, instead of offering only an account of the bank, and for such an amount as was commensurate with its funds, entered into a combination or co-partnership with certain individuals, known as stock and exchange brokers, together with certain other individuals, not so known or designated, but a part of whom were of this committee; and one, a director of this bank not of the committee; making three of the directors of this bank, taking a part in said combination, and becoming co-partners with the bank and others, in several large sums of money, as will more fully appear by the minutes of this board, all which conduct the undersigned do most unequivocally condemn, as being injurious to the state, and tending to cast odium on the standing and reputation of the bank.

The undersigned cannot view this combination in any other light, than as a gross violation of good faith towards the state, as it tended to prevent or exclude individual offers for the loan; and they are brought to this conclusion from the existence of the following facts. A few days have only elapsed, since the general government paid to its creditors, a large amount of the United

States' loan; this circumstance, together with the previous state of the money market, renders it obvious that a large amount of additional funds, suddenly thrown upon us, would induce the owners and agents of such funds, to look to the loans created by the state as a safe and good investment.

For these obvious reasons, the undersigned conscientiously believe, that the state could, without difficulty, have negotiated the whole amount of loan, at a considerable advance above par. Another serious objection presents itself to the minds of the undersigned, in consequence of the bank forming connections with individuals, who adventure in the stocks on speculation. The stock dealer, who follows it as a business, has every advantage over the bank, in as much as he has no opinion but his own to consult; he has the benefit of being daily in the market; of mixing with and feeling the public pulse; has a knowledge of buyers as well as holders, and can act with more facility, by taking advantage of circumstances, at particularly favorable moments, which the bank, from the very nature of its organization, has it not in its power to do. Nor is the objection above mentioned confined to the home market, but has extended its baneful influence to Europe, where, as the undersigned solemnly believe, those who have previously been connected with the bank in its purchases of loans, have had the advantage of going before the bank into the market, while the bank, in consequence of these connections, has been necessitated to hold its stocks, to its serious disadvantage.

This position, the undersigned believe, will be sustained by the perusal of a letter from the Messrs. Barings of London on the subject of the stocks, under date of 15th May last.

But another, and in the opinion of the undersigned, a very cogent argument against the bank suffering stock speculators to become co-partners with it. is, that directors and others connected with the fiscal operations of the bank, may become co-partners under the unhallowed cover of the brokers, and whose interest it may become, under such circumstances, to keep the stocks of the bank out of the market, so long as the sales of the stocks in the hands of concealed partners remain unconsummated.

While on this part of their subject, the undersigned feel it their duty to advert to the fact, that one house or firm, carrying on the business of stock and exchange brokers, have, through the agency of the bank, become holders of the recent loan, to the enormous amount of eight hundred thousand dollars, while the bank itself holds only the sum of five hundred and fourteen thousand two hundred dollars! And while this circumstance induces the undersigned to ponder at the disparity of the sums, they cannot but reflect too, that these gentlemen are the brokers of the bank!!

The undersigned merely state the facts, and leave it for all parties concerned to judge of the propriety or impropriety of the matter.

One other fact, growing out of this affair, the undersigned deem it their duty to notice.

When the stock committee were about to present their report that the loan had been taken, a member of that committee was desirous that the names of all the parties concerned should appear upon the face of the report, which was objected to by two members of the committee.

After the adoption of the report, the member of the committee alluded to, rose in his place and offered a resolution to make the names of the parties a part of the record. It was finally carried in the affirmative, but previous to, and pending its passage, it was again objected to, by the same two members of the committee, and finally voted against by them, and one other gentleman not a member.

The reason why the undersigned had a desire to know the parties with whom the bank had thus connected itself in very large sums, must appear obvious; the bank had taken the whole of the loan, and was therefore bound in good faith to the state to make up the whole sum. The undersigned, therefore, as directors had a right in common with every other director to know, and whose duty it was to take proper measures to discover, who the bank stood bound for, and why an attempt should have been made to smother any part of the transaction, appears mysterious to the undersigned. If it was designed to insult the undersigned as well as others, who were desirous to have the knowledge of the whole of the facts placed upon the records then have the gentlemen in question attained their object. The undersigned, therefore, deem it their duty as directors of this bank, seriously and solemnly to protest against the act of the majority of the directors in the appointment of the stock committee, as well as against that part of the committee who were privy to, and instrumental in furthering the views of the majority—and against all parties concerned in the participation with the bank in the loan in question; whether as individuals, firms, bodies corporate, or otherwise; either as they stand, or ought to stand upon the records of this bank, and against all others who may have covertly so participated, standing either in the relation of directors, president or cashier, or of any other person or persons connected with this institution, if any do so stand; and desire that this instrument may be made matter of record.

ABRAHAM OKIE,  
THOS. CAVE,  
JOHN T. SULLIVAN.

*Philadelphia, July 12, 1828.*

*Answers of the Bank of Pennsylvania to the questions proposed by the Committee of the Legislature, on the 30th December, 1828.*

QUESTION No. 1. The nature of and state of the contingent fund; its use and object?

ANSWER. The contingent fund consists of a sum of two hundred thousand dollars, derived from the profits of the institution, and set apart for the purpose of meeting any losses which may occur in the business of the bank.



**Q 2** Losses of the bank in the last sixteen years, and by whom incurred.

**A** The amount of debts protested and charged to the account of profit and loss, during the last sixteen years, is \$ 331,180 88; a considerable amount of which, however, were debts which originated at periods more remote than sixteen years. From this sum the bank has since received payments to the amount of \$ 10,807 17. The list marked A is here exhibited.

**Q 3** How much was lost by *state* directors, and how much by *stockholder* directors?

**A** The amount of discounted bills, protested for non-payment, which were drawn or endorsed by directors elected by the *stockholders*, and now remaining unpaid, is \$ 84,786 78; and the amount of discounted bills, protested for non-payment, which were drawn or endorsed by directors appointed by the *legislature*, and now remaining unpaid, is \$ 102,101 57. Of the last mentioned sum, it is supposed that \$ 42,954 have been secured, and will be paid.

**Q 4** What amount of notes discounted and protested are considered good, bad or doubtful?

**A** The amount of discounted and protested notes in this bank, not yet charged to the account of profit and loss, is \$ 333,647 76; and in the estimation of the committee they may be fairly valued at between 60,000 and 100,000 dollars.

**Q 5** How are loans made?

**Q 6** Are they made by the officers *without* the knowledge or consent of the board of directors, or of the committee of finance?

**Q 7** If so made, are they entered on the general discount ledgers and laid on the directors' tables, brought over for the inspection of the board at the next discount days succeeding such loans?

**A** to 5, 6, 7. Loans at this bank are made by the board of directors, and recently no loans have been made but by the board. Occasionally, when money is abundant, it is the practice of the president to grant discounts under certain circumstances; but it has not been the practice for any other officer in the institution to make discounts; and in those cases where loans have been made by the president, or a committee of finance, they have been regularly entered in the discount books, for the inspection of the board on the next subsequent discount days.

**Q 8** Are loans ever made to brokers or others on pledges of stock?

**A** Heretofore, when money was abundant, loans were made to brokers and to others, on pledges of stock, by a committee appointed for the purpose. At this time, the whole sum now out on loan to brokers, on pledges of stock, does not exceed 7000 dollars; and the amount to all other persons, on such pledges, is very inconsiderable.

**Q 9** What amount of paper now discounted is *accommodation*; how many years has it been running on; and what is the proportion of *business* paper?

**A** Of the discounted paper now held by the bank, and not pro-

tested, about \$501,244 dollars is accommodation, some of which has been running for several years; about 918,025 dollars is *business* paper; and in addition, there is about 58,867 dollars, secured by mortgages.

Q 10 What is the amount of the debts *due* to the bank—their nature—of how long standing—whether any legal remedies have been taken for their recovery—whether they are good, doubtful or bad?

A In addition to the debts mentioned in the answer to question No. 4, there are certain other debts *due* to the bank, on which losses may be anticipated. These consist principally in debts due to the former offices at Easton and Pittsburg, in debts due to the offices at Lancaster and Reading, and in a debt due from the late bank at Snow Hill. Some of these debts are of many years standing, and the losses on them are estimated at 45,170 dollars. All the legal measures which were deemed proper and useful, have been taken for their recovery.

Q 11 The late loan to the state, at what rate was it taken; and were any, and if any, what arrangements were made with brokers, or others, in regard to that loan?

A The late loan to the state was taken by the bank *at par*. Previous to taking it a committee appointed by the board had an understanding with another institution and with individuals, whereby, if the whole stock were obtained, such other institution and individuals should take of it from the bank 1,485,800 dollars, at the same price paid by the bank, and that the bank should retain the balance of 514,200 dollars.

Q 18 Are brokers or others allowed to overdraw the bank between the hours of 9 A. M. and 3 P. M., on the presumption that the overdraft will be made good; and if so, is not the bank liable to lose large sums by the practice; and has she not lately lost several thousand dollars by it, and if so, by whom?

A The checks of customers, who are considered perfectly responsible and safe, are usually paid without special reference, at the moment, to the state of their accounts; and they are paid in the early part of the day, on the presumption, that if they are not then good, deposits will be made before three o'clock, to make them good. This arises from the necessity of the case, and from the nature of the paying teller's business, which renders it almost impossible for him to compare every check before payment with the account in the ledger; and it is thought that the teller's knowledge of the standing of those whose checks he pays, and his care not to pay any which he does not believe perfectly safe, gives the bank a pretty good security against losses from this source. It is believed, that \$101 56, in 1824—\$3 51, in 1825—\$36 24, in 1827—and \$623 68, in 1828, are the only losses the bank will sustain from overdrafts, in the last six years; and in the last mentioned sum is included three checks, amounting together to \$618 43, which were *counterfeit*, and would not have been lost if they had been genuine. Recently, the account of a broker was overdrawn for

\$3,726 73, but \$735 62 has been repaid, and it is expected that the balance will be recovered.

Q 14 Has the bank ever lost any specie—if so, how was it lost, and what was the amount?

A The bank has lost specie to the amount of two thousand dollars. The fact was discovered and made known by the cashier, on the 20th April last; and on the same day a committee, consisting of Messrs. Ridgway, Okie and Richards, was appointed, to investigate the circumstances of the loss. The report of that committee, as approved and adopted by the board on the 21st September last, will detail the circumstances of that loss, as fully as they could be ascertained; and a copy of the report is herewith exhibited. (marked B.)

Q 15 Do you now pay interest to the Harrisburg bank—if so, why was it contracted for?

A On the first of November last, this bank agreed with the Harrisburg bank, that a balance of \$ 150,000 should be retained with by the former *for sixty days*, on interest at the rate of five per cent. per annum. A prominent reason for this arrangement was to aid the bank in complying with the wishes of the governor, by advances of money to the commonwealth, in anticipation of the January and February instalments on the loan of 1828.

Q 16 When the bank took the state loan, what rate did she fix upon it by her stock committee?

A When the bank took the loan, the committee appointed for that purpose authorised the cashier to make the following offers, on the first of July last, viz: "In behalf of the bank of Pennsylvania I make the following offers, to lend to the commonwealth two millions of dollars, in the manner and on the terms stated in the notice from your department, dated 31st May, 1828. *First*—For the whole stock, I will pay one hundred dollars in money for every one hundred dollars; or, *Second*—If the above offer be rejected, because of a better bid, or better bids, from other sources, then I will pay for the whole stock, one per cent. over and above the value of the premiums offered, on so many of the best bids from other sources, as when taken together, shall not be less than 800,000 dollars, nor more than 2,000,000 of dollars; provided, I do not thereby pay more than 101 dollars in money for every one hundred dollars in stock. It is not intended that either of the above offers shall apply to less than the whole stock to be created under the act of 24th March last."

Q 17 What amount of your notes are due, unpaid or protested for non-payment?

A The amount of discounted notes in this bank, due, unpaid or protested for non-payment, is \$ 333,647 76, exclusive of such as have been heretofore charged to the account of profit and loss.

Q 18 What are the salaries of the bank officers, respectively?

**A** The salaries of the bank officers, respectively, are,

The President	\$ 3000
Cashier	\$250
Paying teller	1800
Receiving teller	1500
First book-keeper, and for the transfer and dividend departments	1500
Two book-keepers, \$ 1000 each	2000
Assistant to the first teller and for the state stock department	1000
Discount clerk	1000
Runner	900
Two note clerks, \$ 675 each	1350
Cashier's clerk	750
Two porters, \$ 495 each	990
Two watchmen	537

Answers of the bank of Pennsylvania to the questions proposed by the committee of the legislature, on the 2d day of January, 1829.

*Question No. 19.* Has the board ever thrown out *good* business paper of small amounts, when she was at the same time making large loans to brokers and others, dealing largely in stocks?

*Answer.* Good business paper of small amounts may, in some instances, have been rejected, and on the same day a large discount been made for a broker. Whether the broker was then dealing largely in stocks, is not known to the committee. Particular cases are not now recollected; but it is probable the rejected paper was offered by persons who had no claim on the score of their accounts. It has not been the practice of the board, when money was abundant, to reject any man's paper solely because of the profession or business he follows.

*Q. 20.* Has the bank ever allowed the drafts of the state treasurer to be protested for non payment; if so, what was the reason for the same?

*A.* It is believed, that no draft of the *state treasurer* on this bank was ever protested for non payment.

*Q. 21.* Does the cashier, or other officer of the bank, ever take checks on any bank dated to a future period, to make good the account of any broker's over draft at 3 o'clock?

*A.* They do not.

*Q. 22.* Do officers of the bank, keep accounts in the bank—if so, what amount of money has each officer on discounts, as drawers, or indorsers?

*A.* The committee deem this question exceptionable; but, as the president and cashier, have requested that it shall be answered, they comply by stating, that no officer in the bank is permitted to have an account in the bank except the president and cashier. The president is now payor for 27,950 dollars, and endorser for 13,000 dollars. The cashier is not payor or endorser on any note

discounted at the bank, and has not asked or obtained a loan from the bank since he held the office.

*Q. 23.* Has any person connected with the bank, induced any one to withhold investment in the state loan or loans?

*A.* The committee do not know that any director or officer of the bank, has induced any one to withhold investment in the state loan or loans.

*Q. 24.* Has the board ever exonerated the cashier, and his security, from any liability for any loss of specie incurred?

*A.* The board has not exonerated the cashier from any loss for which he was ever liable.

*Q. 25.* At what rate did the stock committee offer the *state loan* at, in the Philadelphia stock market, or what price did she ask for it?

*A.* The amount of state stock which the bank has sold in this city, since the last loan was taken, is 221,842 dollars and 78 cents; and the prices obtained since the first of August (the buyers taking the interest from the first of August,) have averaged 103.39. per cent.

*Q. 26* Who subscribed to (or to whom the bank allow to receive) the balance of the stock which she contracted for?

*A.* The bank took the whole loan, but previous to taking it, the committee appointed by the board for that purpose, had an understanding with another institution and individuals, under which the stock was distributable as follows, viz:

To the bank of Pennsylvania,	\$514,200
To the bank of Chester county,	25,000
William Brown,	250,000
S. & J. Nevins & co.	80,000
E. & W. Coleman,	50,000
James Paul,	61,000
John Brown,	8,000
David Caldwell,	3,800
Thomas & J. G. Biddle,	800,000
Robert Ralston,	90,000
William Sansom,	50,000
Caleb Brinton, jr.	23,000
T. & S. Wagner,	25,000
Norris Stanley,	12,000
Benjamin Chew,	8,000

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**\$2,000,000**

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These persons took the stock from the bank on the same terms at which the bank took it from the state, without any commission or compensation to the institution or any officer in it; and, from the first stock paid for, an ample security was retained by the bank for the subsequent payment. No stock has been transferred before payment was made. All the payments have been made, except 113,530 dollars, which will be due on the 1<sup>st</sup> proximo. No

4. That the state loan of 1827. for one million of dollars, was taken on the 9th of July, 1827. Eighty thousand dollars of it was taken by the Philadelphia bank and Farmers' and Mechanics' bank, and \$920,000 of it was taken by the cashier of this bank, under the direction of a committee (consisting of Messrs. Sanson, Brown and Neff) appointed with full powers on the 13th of June, and whose report of their proceedings was sanctioned by the board on the 14th of July, 1827. Previous to offering for this loan, an agreement was made by the committee, with the Philadelphia bank, the Farmers' and Mechanics' bank and Messrs. Thomas and John G. Biddle, on the 29th of June, under which the stock was to be shared as follows, if it should be obtained, viz:—The bank of Pennsylvania was to take \$426,000, the Philadelphia bank was to take \$160,000, the Farmers' and Mechanics' bank was to have \$174,000, and Messrs. Thomas and John G. Biddle were to have \$200,000. This stock was taken at \$104 75, and as the price was higher than was satisfactory to the Farmers' and Mechanics' bank, and to the Philadelphia bank, those institutions did not take the full amount originally contemplated, but the whole stock was finally divided as follows, viz:—The bank of Pennsylvania took 720,000, the Farmers' and Mechanics' bank, and the Philadelphia bank, took, \$80,000, and Messrs. Thomas and J. G. Biddle took \$200,000.

## B.

*Bank of Pennsylvania, Sept. 20th, 1828.*

The following report and resolutions were adopted by the board.

The committee appointed on the twenty-sixth of April last, to investigate and report to the board, the circumstances of the loss arising from a deficiency of two thousand dollars of specie in the vault of the bank. Two boxes being found empty which should have contained each, one thousand dollars in half dollars, respectfully report,

That they have devoted much time and attention, to ascertain the circumstances which occasioned this loss, but they are still unable to present to the board any positive proof which will lead to the detection of the individual by whom this money was purloined. From the testimony of John Billmeyer, who has charge of the specie in the vault, it appears he was obliged by indisposition, to absent himself from the bank for six weeks, in a part of December, 1825, and in January, 1826, during which period the charge of the specie in the vault, devolved on John Rayfield, then a porter in the bank. It is believed, the two boxes found in the vault empty, were placed there in that state, with the view of representing full ones, for the express purpose of deception. And from a variety of circumstances which appeared in evidence before your committee, this might have been done during the indisposition of John Bill-

meyer; and that the two thousand dollars which these two empty boxes represented as being in the vault, in the opinion of your committee, were never carried into the vault, but fraudulently concealed in some obscure part of the bank and gradually taken away as opportunity permitted. The death of John Rayfield, on the twenty eighth of February, 1826, precludes the possibility of now obtaining that information which might then have been had. John Billmeyer, on the restoration of his health and return to his duties in the bank, did not count the specie in the vault, for the purpose of ascertaining whether the business performed during his absence, was done faithfully, and this omission is to be lamented, for had it been done at that time, much light might have been thrown on this mysterious affair, and possibly have led to a discovery. The committee, after carefully investigating this business, have no cause to suspect any person now employed in the bank as implicated in any manner in the fraud, and as the loss appears inevitable and certain to the bank, beyond the possibility of presenting to the board any conclusive proof as to the manner in which the money was taken, nor as to the person who took it, or of pointing out any measures which will avail for its recovery, the committee respectfully propose the following resolutions, which they consider as embracing the object now under consideration, and with the view to guard more effectually against any similar occurrence.

*Resolved*, That a special committee be appointed by the board, whose duty it shall be to count all the specie and notes of the bank of every description and make a careful examination of all the concerns of the institution, and by their report enable the board to know with certainty, whether the funds of the bank are now entire.

*Resolved*, That a special committee be appointed to consider and report to the board, what further regulations are necessary and expedient for the faithful performance of the duties of the clerks and porters respectively, so that the proper responsibility and accountability of each shall be more distinctly specified, ascertained and established.

All which is respectfully submitted,

Signed,

J. RIDGWAY,

MARK RICHARDS.

The following members were then appointed a committee to execute the duty prescribed by the first resolution, viz. Messrs. Sansom, Preston, Hemphill, Ridgway, Stocker, Vaux, Brown, Richards, White, Wager, Ralston, Penrose, Wagner, Laguerenne, Neff, Leiper, Palethrop, Sullivan, Cave and Okie.

The following members were then appointed to execute the duty prescribed by the second resolution, viz. Messrs. Ridgway, Richards and Okie.

Extract from the minutes.

Attest,

E. CHAUNCEY,

Cashier.

## BANK OF PENNSYLVANIA,

1st January, 1829.

The committee of the bank of Pennsylvania, have instructed me to hand you the enclosed answers, to the questions proposed by the committee of the legislature, on the 30th ultimo.

The lists of names, referred to in the answer to the questions No. 2, is made out; and if required will be exhibited to-morrow; although its publication would perhaps be considered as interfering with the rights of individuals doing business with this bank.

I am, very respectfully yours.

WM. SANSOM, *Chairman.*

J. R. BURDEN, Esq. Chairman  
of the committee of the legislature.

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C.

(*Extracts from the minutes.*)

*Bank of Pennsylvania,  
Wednesday, April 11th, 1821.*

It was moved by Mr. Richards, seconded by Mr. Carey, that a committee be appointed, with full powers, in relation to any subscription they may deem it expedient to make to the proposed loan of money to the commonwealth of Pennsylvania, agreeable to the notice from the Treasury Department, dated the fifth instant.

Whereupon, Messrs. Sansom, Ridgway and Clapier, were appointed.

*Bank of Pennsylvania,  
Saturday, April 3d, 1824.*

A letter from the secretary of the commonwealth, dated the thirty-first ultimo, with a copy of the act of assembly of the thirty-first ultimo, was submitted to the board. Whereupon, it was voted, that the whole subject be referred to a committee, consisting of Messrs. Sansom, Turner and Robertson, with full power, to negotiate and agree with the state for the full amount of the loan of six hundred thousand dollars, or any part of it, on such terms as they may think expedient.

*Bank of Pennsylvania, Saturday June 5th, 1824.*

The following report was read.

The committee appointed on the 3rd of April last, respectfully report:

That they have carefully attended to the object of their appointment, and by agreements with the Governor of Pennsylvania, have obtained 500,000 dollars of the five per cent stock, created under the act of Assembly passed the 30th of March last.

Of this stock 280,000 dollars is to be received *at par*, in payment of the balance due from the commonwealth to this bank, for



advances which were payable at the pleasure of the commonwealth, and the stock will bear interest from the 1st of May last, and will be redeemable at any time after ten years and not exceeding fifteen years.

The remainder of this stock, amounting to 220,000 dollars, has been obtained on a proposal made by this bank at a public competition on the 1st inst. The *premium* to be paid is 8327 dollars.

The money is to be advanced at the following periods, viz:

100,000 dollars on the 1st Monday in June.

80,000 do on the 1st Monday in October.

40,000 do on the 3rd Monday in December next.

The certificates for these sums will be received, bearing interest from these dates respectively; and will be redeemable at any time after the 1st day of January, 1839.

All which is respectfully submitted.

Signed

WILLIAM SANSOM,  
JAMES ROBERTSON,  
JOHN TURNER,

*Committee.*

Whereupon, the board voted that this report be accepted and adopted.

*Bank of Pennsylvania, Wednesday, May 18th, 1825.*

The act of the legislature passed 11th April, and a public notice from the Secretary of State, authorising and inviting a loan of one hundred and fifty thousand dollars, to the commonwealth, were read.

Whereupon, the board voted, that the subject be referred to Messrs. Sansom, Turner and Robertson, with *full power* to negotiate and agree with the commonwealth, to lend the sum of one hundred and fifty thousand dollars, or any part of it, and receiving negotiable certificates of stock at such terms as the committee think expedient.

*Bank of Pennsylvania, Saturday, June 11th, 1825.*

The following report was read and approved by the board.

*Bank of Pennsylvania, June 10th, 1825.*

The committee appointed on the 18th ultimo, with full powers to negotiate and agree with the commonwealth of Pennsylvania, for the five per cent. stock, to be created under the act of Assembly passed the 11th of April last, respectfully report:

That they have attended to the business of their appointment, and have agreed with the governor for the whole of the five per cent. stock, to be created under the act of 11th April last, amounting to 150,000 dollars, the interest on which is to be paid at this bank semi-annually, and the stock itself is to be redeemed by the state at any time after the 1st of January, 1840.

For this stock the committee has agreed that the bank shall pay a premium of *two and a half per cent.*, amounting to \$750 dollars on the whole stock, and that the money shall be advanced at the following periods, viz:

51,250 dollars	on the 1st of July next.
51,250 do	1st of September next.
51,250 do	31st of December next.

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153,750 dollars.

The certificates of stock to be received will bear interest from these dates respectively.

All of which is respectively submitted.

Signed

WM. SANSOM,  
JAMES ROBERTSON,  
JOHN TURNER.

*Committee.*

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*Bank of Pennsylvania, Wednesday, June 13th, 1827.*

The board voted, that Messrs. Sansom, Brown and Neff, be a committee, *with power* to negotiate and agree with the state of Pennsylvania, for the whole or any part of the loan of 960,000 dollars, which the state is desirous to obtain on the 9th of July next, on such terms as said committee shall deem expedient.

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*Bank of Pennsylvania, Saturday, July 14th, 1827.*

The following letter from the Secretary of the commonwealth was read, and the board voted that the loan of 920,000 dollars be taken on the terms stated in the letter of the Secretary, and that it be shared agreeably to the previous agreement of the committees, as follows, viz: 720,000 dollars of stock for the bank of Pennsylvania, and 200,000 dollars to Messrs. Thomas and John G. Biddle.

*Harrisburg, July 10th, 1827.*

SIR.—I am directed by the Governor to inform you, that he will accept on behalf of the commonwealth, under the provisions of the act of the 9th April last, to provide for the further extension of the Pennsylvania canal, a loan from the bank of Pennsylvania, agreeably to your proposals of the 9th instant, of the sum of nine hundred and twenty thousand dollars upon the said bank, paying a premium of four dollars and seventy-five cents on every hundred dollars of stock, bearing an interest of five per cent per annum, The amount to be deposited in the said bank to the credit of the commonwealth as follows:—Eighty thousand dollars on the 20th instant, and the further sums of one hundred and sixty thousand dollars on the first days of August, September, October, November and December next. The remaining sum of forty thousand dollars at such time as may be required by the government, the interest to commence when the deposits are made as aforesaid,

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and certificates of stock to be issued in the name mentioned in the public proposals for the loan from the Secretary's office, of the 8th of June last. I am further directed to inform you, that the sum of eighty thousand dollars has been obtained of the loan authorised by the before mentioned act, on the terms and conditions on which the general loan might be obtained, reserving to the lenders the right to be repaid; if not satisfied to continue the loan upon these terms. Information will be conveyed by this day's mail to the lenders, of the terms of the general loan; and if repayment is required, then the Governor will accept from your bank a loan of the said sum of eighty thousand dollars, to be deposited to the credit of the commonwealth on the 20th instant, at the same premium, and on the same terms that the loan of \$920,000 is made for. As soon as an answer has been received from the lenders of the \$80,000, you will be apprised of it.

You will be pleased in reply to state, that the bank of Pennsylvania agrees to make the loan in the manner stated in this letter.

I am with much respect,

Your obt. servt.

Signed I. D. BARNARD.

ELIHU CHAUNCEY, Esq.  
Cashier of the Bank of Pennsylvania.

*Bank of Pennsylvania, Saturday, May 24th, 1828.*

The cashier informed the board, that the State Treasurer was now in the house, and was desirous of conferring with the directors, or with any committee who shall be appointed by the board, on the subject of a special loan of money to the commonwealth, which the Governor is desirous to obtain under the act of 21st April last.

Whereupon, the following resolution was offered by Mr. White: seconded by Mr. Ralston, and adopted by the board.

“Resolved, That a committee be appointed to confer with the State Treasurer on the subject of, and agree to make a temporary loan to the state, of a sum of money not exceeding 150,000 dollars, on such terms as the committee shall agree to.

Messrs. Ridgway, Sansom, Palethorp, Brown and Laguerenne, were appointed on this committee.

The following report was read and approved by the board:

*Bank of Pennsylvania, Saturday, 31st May, 1828.*

The committee appointed on the 24th inst. respectfully report:

That in conformity with powers conferred by the resolution, they have made a loan of 150,000 dollars to the commonwealth of Pennsylvania, (it being a part of the sum which the Governor was authorised to borrow under the act of Assembly passed the 21st April last,) and the amount has been placed to the credit of the commonwealth in this bank. The whole sum is to be re-imbursed

to the bank on the 14th day of July next, with interest, at the rate of 5 per cent. per annum, on fifty thousand dollars, from the 24th instant, and on one hundred thousand from the 29th instant.

All which is respectfully submitted.

Signed,

J. RIDGWAY,  
WM. SANSOM,  
WM. BROWN,  
P. L. LAGUERENNE,

*Committee.*

*Bank of Pennsylvania, June 21, 1828.*

The following report was approved, and ordered to be inserted on the minutes.

*Bank of Pennsylvania, June 21, 1828.*

The committee, appointed for the sale of a portion of the state five per cent. stock, owned by this bank, report in part, for the information of the board:

That under the authority given by the resolution of the 5th of April last, they have transferred and sent to Messrs. Baring, Brothers, & Co. of London, five hundred thousand dollars of the stock created under the act of 9th April, 1827, with instructions to sell it at the best price that can be obtained, but not at a price less than ninety-five per centum. This stock was forwarded to Messrs. Baring, Brothers, & Co. at the periods, and in the same following:

22 Certificates, in the cashier's letter of 18 April last, sent per the ship Algonquin,	\$ 100,000
22 Certificates in the cashier's letter of April 21 last, sent per the ship Brighton, from N. Y.	100,000
22 Certificates in the cashier's letter of 4th June, inst. sent per the ship George Canning, from New-York,	100,000
22 Certificates in the cashier's letter of 13th June, instant, sent by the ship Cambria, from New-York,	100,000
22 Certificates in the cashier's letter of 20th June, sent per the ship Tuscarora, from Philadelphia,	100,000
	<hr/>
	\$ 500,000

From Messrs. Baring, Brothers, & Co. no reply has as yet been received, but it is daily expected. Several letters from London, as late as the 13th of May, induce the committee to expect, that the sales of this stock will be at prices above their limit, and satisfactory to the board.

Under the resolution of 21st November last, to sell any amount of stock not exceeding 500,000 dollars, the committee have sold in this city, of the same kind of stock, \$154,600 87, for which has

been received in cash, \$123,489 58, and in paper, with satisfactory security, \$40,202 67, making together, \$163,992 25.

This information is respectfully submitted, by

(Signed,)

J. RIDGWAY,  
WILLIAM SANSOM,  
WILLIAM BROWN,  
P. L. LAGUERENNE,  
JOHN H. PALETHORP,  
*Committee.*

Mr. Ridgway offered, and Mr. Preston seconded, the following resolution:

*Resolved*, That a committee be appointed and authorised to make such an offer for state stock, to be created under the act of 24th March last, as they shall think expedient, and for the interest of this bank.

It was moved by Mr. Sullivan, and seconded by Mr. Okie, that the consideration of the resolution offered by Mr. Ridgway, be postponed, for the purpose of enabling Mr. Sullivan to introduce a substitute, which he read in his place. It being required by Messrs. Sullivan and Okie, that the vote on this motion be taken by *yeas* and *nays*, it was so taken, and the motion was lost by the following vote:

*Yeas*, Messrs. Okie, Palethorp, Sullivan and Cave—4.

*Nays*, Messrs. Sansom, Preston, Hemphill, Ridgway, Vaux, Brown, Richards, White, Ralston, Penrose, Wagner, Morgan, Neff, Leiper and Norris—15.

The board then agreed, on motion of Mr. Neff, seconded by Mr. Ralston, to add to the resolution offered by Mr. Ridgway, the following words, viz: "Provided said committee shall be of opinion that they can reduce the state stock held, and to be held, to 12 or 1500,000 dollars, within six months or nine months from this date." Messrs. Sullivan and Okie required that the vote on the resolution as amended, should be taken by *yeas* and *nays*, and it was so taken, and the resolution as amended was adopted by the board. The yeas were, Messrs. Sansom, Ridgway, Preston, Vaux, Brown, Richards, White, Ralston, Penrose, Wagner, Neff, Leiper and Norris—13. The nays were, Messrs. Okie, Palethorp, Sullivan and Cave—4.

Mr. Sullivan moved, and Mr. Okie seconded, the following resolution:

*Resolved*, That in any sum which the bank of Pennsylvania may offer for the state stock to be created by the act of March, 1828, the bank shall offer, in its *own name*, and without the connexion or participation of any other corporation or individuals.

Messrs. Sullivan and Cave required that the yeas and nays should be taken on this proposed resolution, which was done accordingly, and the same was rejected by the following vote:

*Yeas*, Messrs. Wagner, Okie, Palethorp, Sullivan and Cave—5.

*Nays*, Messrs. Sansom, Preston, Ridgway, Vaux, Richards, White, Ralston, Penrose, Neff, Leiper and Norris—11.

Messrs. Ridgway, Sansom, Brown, Laguerenne and Palethorp; were appointed the committee to carry into effect the resolution proposed by Mr. Ridgway, as amended and adopted by the board.

*Bank of Pennsylvania, June 25, 1828.*

Mr. Sullivan offered, and Mr. Okie seconded, the following resolution:

*Whereas*, The large amount of the capital stock of this bank, held by the state, induced the legislature to reserve the right of electing a portion of the directors: And *whereas*, the magnitude of the stock operation now under consideration, involving as it does the prosperity of the institution, would justify a full representation of the state directors: Therefore,

*Resolved*, That one of the state directors be added to the committee on stocks.

Messrs. Sullivan and Okie required that the vote on this proposed resolution be taken by yeas and nays, which was so taken, and the resolution was rejected by the following vote:

*Yeas*, Messrs. Brown, Okie, Palethorp, Sullivan and Cave—5.

*Nays*, Messrs. Sansom, Preston, Ridgway, Stocker, Vaux, Richards, White, Wager, Ralston, Penrose, Wagner, Neff, Leiper and Norris—14.

*Bank of Pennsylvania,*

*Wednesday, July 9, 1828.*

The following report was read:

*Bank of Pennsylvania, July 9, 1828.*

The committee appointed and authorised on the 21st ultimo, "to make such an offer for state stock to be created under the act of 24th March last, as they shall think expedient, and for the interest of the bank," respectfully report:

That they have contracted with the Governor for the stock to be issued under the act of 24th March last, amounting to *two millions of dollars*, and are to pay one hundred dollars in money, for every one hundred dollars in stock, as will be seen by the annexed letter from the Secretary of the commonwealth, dated the 1st instant. In the distribution of this stock, the sum of \$514,200 will be the property of this bank; and the sum of 1,485,800 dollars will be transferred to those other institutions and individuals who were united in the object, agreeably to the previous agreement of the committee.

All which is respectfully submitted, by

WM. SANSOM,  
J. RIDGWAY,  
P. L. LAGUERENNE,  
WILLIAM BROWN,  
J. H. PALETHORP,  
*Committee.*

*Secretary's Office, Harrisburg, July 1, 1828.*

SIR—I am instructed by the Governor to inform you that he will accept of a loan of *two millions of dollars* from the bank of Pennsylvania to the commonwealth of Pennsylvania, under the authority of the act of the general assembly of the 24th day of March last, upon the terms contained in your first proposition, viz. upon the bank's paying one hundred dollars in money for every one hundred dollars in stock, in your letter, dated this day; the money to be deposited in the bank of Pennsylvania, to the credit of the commonwealth, in the sums, and at the times specified in the proposals issued from this office on the 28th May last, for canal and rail road loan. You will please apprise me of your acceptance of these terms, on behalf of the bank of Pennsylvania, and forward to the state treasurer certificates of the deposits.

Very respectfully, your obedient servant.

(Signed)

C. BLYTHE,

*Sec'y of the Commonwealth.*

Whereupon, the board voted, that the report of the committee be accepted and approved.

The following resolution was moved by Mr. Palethorp, seconded by Mr. Okie:

*Resolved*, That the names of the respective persons and corporations, together with the amount taken by each, of the recent State loan, be entered at large upon the minutes of this bank."

Messrs. Palethorp and Okie required that the vote on this resolution shall be taken by yeas and nays; and the vote being so taken, the resolution was adopted, there being 12 votes in favor of it, and 4 votes against it, viz.

*Yeas*—Messrs. Brown, Richards, White, Wager, Ralston, Wager, Neff, Okie, Leiper, Palethorp, Sullivan and Cave—12.

*Nays*—Norris, Sansom, Preston, Ridgway—4.

The names and amounts referred to in the above resolution, are as follows:

The Bank of Pennsylvania	\$ 514,200
Tho. and Jno. G. Biddle	800,000
William Brown	250,000
Robert Ralston	90,000
Sam. and Jas. Nevins	80,000
William Sansom	50,000
Edward and William Coleman	50,000
Bank of Chester county	25,000
Caleb Brinton, jr.	23,000
Messrs. Wagners	25,000
James Paul	61,000
Norris Stanley	12,000
John Brown	8,000
Benjamin Chew	8,000
David Caldwell	3,800

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\$ 2,000,000

*Bank of Pennsylvania,  
Wednesday, August 13, 1828.*

The following letter was read:

*Office of the Secretary of the Commonwealth,  
Harrisburg, August 7, 1828.*

SIR—I have to inform you that the canal commissioners of the commonwealth will meet at this place on the 18th day of the present month, when it is expected that an application will be made by the board to the Governor, for his warrant for a larger sum or sums for canal purposes, and payable sooner than was at first thought necessary. I am, therefore, directed by the Governor to request of you the favor to inform him, as soon as conveniently may be, whether or not one or more instalments of the permanent loan of the present year, can be had from the bank of Pennsylvania, at an earlier period than was heretofore agreed upon; and if so, at what time payment can be made.

I am, sir, very respectfully,  
Your friend.

JAMES TRIMBLE.

ELTHU CHAUNCEY, Esq.  
*Cashier Bank Pennsylvania.*

Whereupon, on motion of Mr. Palethorp, seconded by Mr. Richards, the board adopted the following resolution:

*Resolved*, That the cashier be requested to reply to the letter of the 7th instant, from the Deputy Secretary of the Commonwealth, and inform that this bank will agree to pay forthwith to the commonwealth, the sum of 293,094 dollars, on account of the future payments to be made under the contract of first ultimo, for the permanent loan of 1828; so that each subsequent instalment shall be reduced from 190,000 dollars to 141,151 dollars."

*Bank of Pennsylvania,  
Saturday, November 15, 1828.*

A letter from the Secretary of the Commonwealth, dated the 12th instant, communicating the request of the Governor, that the bank will advance 92,000, on account of the instalments of the loan of 1828, payable in January and February. On motion of Mr. Sullivan, seconded by Mr. Palethorp, the consideration of this letter was postponed until the next discount day; it being agreed, on motion of Mr. Neff, seconded by Mr. Sansom, that when the vote shall be taken on agreeing to the request of the Governor, it shall be taken by yeas and nays.

*Bank of Pennsylvania,  
Wednesday, November 19, 1828.*

The consideration of the following letter from the Secretary of the Commonwealth was resumed:



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### SECRETARY'S OFFICE,

*Harrisburg, November 12, 1828.*

E. CHAUNCEY, Esq.

SIR—I am instructed by the Governor to inquire of you whether the Pennsylvania bank can advance ninety-two thousand dollars, on account of the instalments of the loan of 1828, to the commonwealth, payable on first day of January and February next, to be proportioned between those two instalments, and be applied to the payment of drafts now held by the Pennsylvania branch bank, of this place. The branch bank, I understand, now holds drafts to the amount of sixty-six thousand dollars, payable out of the December instalment; and to the amount of twenty-six thousand dollars, payable out of the January instalment. It would considerably facilitate the canal operations if those drafts could now be paid by advancements on account of the January and February instalments.

Very respectfully,

Your obedient servant:

(Signed)

C. BLYTHE.

Whereupon, Mr. Ridgway moved, and Mr. Richards seconded, the following resolution:

*Resolved*, That this bank will accede to the request of the Governor, as communicated in the letter of the Secretary of the Commonwealth, dated the 12th instant, by advancing, on account of the loan of 1828, the sum of ninety-seven thousand dollars, in anticipation of the January and February instalments; provided, the whole amount so advanced shall be applied to pay the drafts on the treasurer, which are now held by the office at Harrisburg.

This resolution was adopted by the board; twelve members voting in favor it, and five members voting against it.

Those who voted for it were Messrs. Sanson, Preston, Ridgway, Vaux, Brown, Richards, White, Ralston, Penrose, Laguerrenne, Leiper and Norris.

Those who voted against it were Messrs. Wager, Neff, Okie, Palethorp and Sullivan.

*Bank of Pennsylvania, Wednesday, November 26, 1828.*

The cashier submitted the following letter received from the department of state.

*Secretary's Office,*

*Harrisburg, November 21, 1828.*

SIR,

I am instructed by the Governor, to inquire of you, whether the bank of Pennsylvania can advance to the commonwealth, for canal purposes, the balance of the two last instalments of the loan of 1823, which were made payable on the first days of January and February, 1829, amounting to 153,600 dollars. Sixty-five thousand dollars of this sum will be wanted immediately to meet present demands on the treasury, and the remainder when called for.

The Governor wishes to receive the above information as early as your convenience will permit.

I am respectfully your friend,

JAMES TRIMBLE,  
Deputy Secretary.

ELIHU CHAUNCEY, Esq. *Cashier*  
*of the bank of Pennsylvania.*

*Mr. Wager moved and Mr. Palethorp seconded the motion, that the above application be rejected.* While this motion was under consideration, Mr. Ralston moved and Mr. Richards seconded, that the further consideration of the subject be postponed until the next meeting of the board. The motion of postponement was agreed to by the board.

*Bank of Pennsylvania, Wednesday, December 3, 1828.*

The board resumed the consideration of the letter of the Deputy Secretary of the commonwealth, dated 21st ultimo, and the motion of Mr. Wager, seconded by Mr. Palethorp, "*that the application of the Governor be rejected,*" being withdrawn by the mover, Mr. Sanson moved the following resolution, which being seconded by Mr. Richards, was adopted by the board:

*Resolved;* - That this bank will advance the sum of 76,500 dollars to the commonwealth, in anticipation of the January instalment, of the loan of two millions of dollars."

Extract from minutes, October 29, 1828, bank of Pennsylvania.

*Resolved,* That the committee on stock be, and they are hereby authorised, if they deem it expedient, to obtain temporary loans, and pledge state stock for security, to an amount not exceeding two hundred thousand dollars.

Extract from minutes, November 1st, 1828.

Extracts from minutes, October 25, 1828. Bank of Pennsylvania.

The cashier reported that in compliance with the resolution passed the 25th inst. he had proceeded to Harrisburg, and had made an arrangement with the Harrisburg bank, by which, of the balance now to the credit of that bank, the sum of 150,000 dollars is to remain in this bank, not to be drawn on for 60 days from this date, on interest at the rate of 5 per cent per annum. This report was approved by the board.

1st. *Resolved,* That the committee for selling the stock, be and are hereby authorised to give instructions to Messrs. Baring, Brothers & Co. of London, to dispose of the stock, held by them for account of the bank of Pennsylvania, at the current market price of the stock.

2d. *Resolved.* That the cashier, or one of the directors, be and he hereby is authorised and desired to proceed to Harrisburg with the view that he negotiate and make any arrangement with the

bank at Harrisburg in relation to its deposits in this city: *Provided*, That in such an arrangement he does not make an allowance exceeding 3 per cent. interest on their credit, and that such contract may be dissolved by either party on giving 30 days notice, and that he is authorised to negotiate for the present deposit of the Harrisburg bank for a shorter period *without limit of interest*.

*Philadelphia, January 16, 1829.*

H. SIMPSON, *Secretary*  
of the committee of the Legislature.

The following statements refer to some parts of my testimony before the committee of the legislature. I stated that a large amount of business paper was rejected at the bank of Pennsylvania, in the year 1828, principally occasioned by the large amounts of stationary loans held by the bank, which crippled its resources. The following amount is taken from the books:

Rejected in January, 1828,	\$50,097
February	76,907
March	334,422
April	213,319
May	176,667
June	170,032
July	90,188
August	45,545
September	52,391
October	211,669
November	122,872
December	165,237
Total	<u>\$1,709,746</u>

During that period there had been discounted by the *president*, in violation of the charter and by-laws of the bank, without the knowledge or consent of the board of directors, \$189,600 00 for one broker, *Biddle*.  
During the same period, the board discounted 34,916 00 for do do.

Amount in 1828	<u>224,516 00</u>
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It had been stated by John White, that the bank of Pennsylvania was a creditor bank in account with the *city banks*, on the 12th of July \$448,000, and on the 19th July \$393,000, which balances were occasioned by the loan of 1828 having been taken by the bank; it was further added "that the bank remained a creditor bank for a *considerable* time afterwards, and generally for *large amounts*." The following will show: July 18, the bank was a

creditor in account with other banks in the city and country	\$242,572
It was a debtor bank August 5,	\$116,950
August 19,	403,965
September 16,	455,455
October 10,	482,322
December 31,	404,259

Thus you will perceive that from the 18th July, the bank was indebted to other banks in the large sum of \$350,000 to \$450,000; an amount averaging three to five times the amount of specie frequently in the vaults of the bank. This is a transcript from the books of the bank. It will appear, that while one broker was accommodated in 1828, to the amount of \$224,516, a large portion of which was at the rate of five per cent. per annum, the large amount of \$1,500,000 of first rate business paper, which would have yielded 6½ per cent. to the bank, was rejected.

JOHN T. SULLIVAN.

A monthly tabular statement of the situation of the bank of Pennsylvania and its branches, from March to December, 1828; taken from the statements of the bank and its branches, on the 20th day of each month respectively; or, the dates nearest to that on which the statements were made up; shewing 1st, the balances in favor of or against the bank, in account with the other banks in Philadelphia. 2d, The amount of notes discounted by the bank in Philadelphia. 3d, The amount of notes discounted by its branches. 4th, The total amount of notes discounted by the bank and its branches. 5th, The amount of stocks held by the bank, bearing an interest. (State 5 per cent. Schuylkill navigation and Union canal, and Chesapeake and Delaware canal 6 per cents.) 6th, The total amount of notes discounted by the bank and its branches, and stocks bearing an interest, held by the bank. 7th, The amount of the notes of the bank in circulation. 8th, The amount of specie in the bank and its branches—all at each date respectively.

In this statement the fractional parts of dollars are omitted.

Dates.	Balances in account with banks in Philadelphia		Amount of notes discounted by the bank in Philadelphia.	Amount of notes discounted by the branch banks.	Total amount of notes discounted by bank and its branches.	Amount of stocks bearing an interest, held by the bank.	Total amount of notes discounted by the bank and its branches, & stocks bearing an interest, held by the bank.	Amount of specie in the bank and its branches.
	In favor of the bank of Penn'a.	Against the bank of Penn'a.						
	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.
March,		74522	1709386	808000	2517386	2006277	4525663	178743
April,	82067		1600287	832338	2482625	2006277	4488902	194194
May,		124965	1512552	862752	2375804	1957783	4333089	201022
June,		24149	1473246	849956	2323202	1882787	4205989	178126
July,	371107		1586253	848602	2434857	2057084	4491941	188932
August,	107974		1643063	849130	2492193	1990782	4482973	218321
Septemb.	68098		1659371	842047	2501418	2280046	4781464	193260
October,	21835		1665643	884824	2550469	2251316	4801785	190042
Novemb.	11623		1610361	935724	2566285	2170625	4736910	182765
Decemb.		152337	1612764	973759	2593523	2156216	4722759	200170

At the time the statement was made in June, there was a special loan to the state of \$150,000, not included in the above; and at the last date, December, there was also a special loan to the state of \$162,030, not included in the above. \$41,000 Schuylkill Navigation 6 per cent. stock, \$50,000 Union canal 6 per cent stock, and since July, \$10,000 Chesapeake and Delaware canal 6 per cent. stock, is included in the amount of stocks; the balance is of various state loans bearing an interest of five per cent.

The first instalment on the two million loan was payable into this bank on the 10th July, and its effects were immediately and most beneficially felt by the bank. By this statement it will appear, 1st. That the balances in account with the banks of Philadelphia, which had previously been largely against the bank of Pennsylvania was immediately after changed in its favour, to the amount of \$371,107 dollars, and were continued for several months for large sums in its favour.

2d. That the balances in its favour enabled the bank to increase the amount of its specie, which at the time of the last statement was above 12 per cent. more than it was at the time of the June statement. *The last before the loan.*

3d. That instead of impairing commercial operations and crippling the means of the bank, it has enabled it to increase the discounts at the bank in Philadelphia, as well as at its branches. The total amount of discounts having increased at every statement since June, and at the last statement in December, was upwards of 11 per cent. more than they were in June. In the city the amount of discounted paper has been decreased since October, it was however, in December, \$146,518 more than it was in June. The total amount of discounts at the branches is increased \$125,803 in the same time.

4th. That the amount of discounted notes and stock bearing an interest to the bank have together been increased since June \$23,750 dollars.

5th. That the increase of the circulation of the notes of the bank, produced principally, it is believed, by the payments to the state for the two million loan, (1828) *passing through this bank*, is upwards of thirty per cent. more than it was in June.

The large balance against this bank in the account with the other banks in Philadelphia, at the time of the December statement was decreased before the next discount day, to \$65,940; it is this 14th January, 1829, not made up completely; it was however, on the 10th instant \$8,521 in favour of the bank. This statement is referred to by John White, in his evidence before the committee of the legislature.

JOHN WHITE.

January 14, 1829.

## E.

*Bank of Pennsylvania, Wednesday, July 25d, 1828.*

The following letter, with the documents mentioned in it, were read by the President, and ordered to lay on the table for consideration, on the next discount day.

*Bank of Pennsylvania, 22d July, 1828.*

GENTLEMEN,

I beg leave to lay before you a letter addressed to me by the Secretary of the commonwealth, dated 18th instant, enclosing a commission from the Governor, appointing me *commissioner of loans*, under the act of 14th April last, with instructions designating the manner in which the duties of the office shall be executed.

My object in presenting these documents, is to obtain your decision and direction, whether I shall, or shall not, accept the appointment and perform the duties.

In making this decision, it will be proper to refer particularly to the 18th article of the 7th section of the act of incorporation; and if it shall be the opinion of the board, that my acceptance of the appointment, and attention to the business, will be contrary to the provision of this article, it will be my duty promptly to decline them.

I am gentlemen,

Most respectfully,

Your obedient servant,

E. CHAUNCEY, *Cashier.*

*To the President and Directors  
of the bank of Pennsylvania.*

*Bank of Pennsylvania, Saturday, July 26th, 1828.*

The board took up for consideration a letter from the cashier, dated 22d instant, with the letter from the Secretary of State, dated 18th instant, a commission from the Governor, dated 18th instant, appointing Elihu Chauncey, commissioner of loans for the state of Pennsylvania, with instructions for managing the business: *Whereupon*, Mr. Ridgway offered a resolution on the subject, which resolution, with the letters and other documents, were ordered to be postponed for consideration, until the next discount day; and the cashier was requested to give notice to the absent members of the board that they may attend at that time.

*Bank of Pennsylvania, Wednesday, July 30th, 1828.*

The following resolution, which was offered by Mr. Ridgway and seconded by Mr. White on the last discount day, was again read and considered, viz:

*Whereas*, A prominent object for which this bank was established, was (as declared in its charter) to promote the regular, permanent and successful operation of the finances of this state: *And whereas*, the legislature has deemed it desirable for the successful

operation of the finances of the state, that its public stock shall be transferable, and the interest payable, at this bank, and that the Governor should appoint the president, or some other fit person, to issue and sign certificates of such stock of this commonwealth, as may be transferred at this bank: *And whereas*, the Governor has appointed Elihu Chauncey, the present cashier of this bank, to issue and sign certificates of such stock, pertaining to the loans of the commonwealth, as may be transferred at the bank of Pennsylvania:

Be it therefore,

*Resolved*, That this bank does hereby accede to those provisions of the several acts of the legislature, in which it has been enacted that the interest on the public stock of the state, shall be payable at this bank, at such times as shall be prescribed, and with such funds as shall be furnished by the state; that the certificates of debt, of the state, may be transferred at this bank, and the transfer received and recorded by, or under the direction of the cashier; and that the cashier, or any other officer in this bank, who has been or may be, appointed and commissioned by the Governor, for the purpose, be and he is hereby required to issue and sign (*as commissioner of loans of the commonwealth of Pennsylvania*.) certificates of such stock, pertaining to the loans of the commonwealth, as may be transferred at the bank of Pennsylvania, according to the provisions of an act of the general assembly, passed the 14th day of April last; and that any and every sum or sums of money, which may be appropriated and paid by the commonwealth, for doing this business shall be placed to an account, in the general ledger of this bank, to be entitled "commissions received from the commonwealth, for doing the public business," and whatever expenses may be incurred by the bank in transacting said business, shall be charged to the same account.

Mr. Sansom and Mr. Ridgway required, that when the vote shall be taken on this resolution, it shall be taken by yeas and nays; and the vote being so taken, the preamble and resolution were approved and adopted, there being 14 votes in favor of them, and 3 votes against them. *viz.* Yeas, Messrs. Sansom, Norris, Preston, Ridgway, Vaux, Brown, Richards, White, Wager, Ralston, Penrose, Wagner, Laguerenne and Neff, 14,—Nays, Messrs. Okie, Leiper and Sullivan, 3.

The board then voted, on motion of Mr. Neff, that the cashier be requested to transmit a copy of the above resolution, to the Secretary of the Commonwealth.

Extract from the minutes.

Attest,

E. CHAUNCEY, *Cashier*.

*Bank of Pennsylvania, 12th Jan. 1829.*

Sir—The bank committee being informed that in this investigation, the committee of the legislature have no new matter to introduce, and that they have agreed that the bank shall be allowed the privilege of offering any testimony that may be necessary to



show that the affairs of the bank have been properly conducted, have instructed me to request, that the committee of the legislature will, in this stage of the inquiry, state specifically in writing what points or charges against the management of the bank, or the conduct of its officers, requires in their judgment any explanation or elucidation.

Many of the points are perfectly understood by the bank committee, and which they think would not require any explanation, but which may not appear so to the legislature; and, as it is desirable to give satisfaction, and to avoid a waste of time upon unimportant matter, the bank committee request that the points may be specified to which they shall direct attention.

Very respectfully yours,

WM. SANSOM, *Chairman.*

JESSE R. BURDEN, Esq. *Chairman.*

*Bank of Pennsylvania, January 12, 1829*

To Wm. Sansom, Esq. &c.

SIR—In answer to your communication of this inst. I beg leave to reply that committee of legislature have, during the whole course of the inquiry, given the bank a full opportunity of asking questions to witnesses, in addition to this, a copy of all questions have been furnished to the bank committee.

The committee of legislature, have not had time to examine the testimony given, and do not think it expedient to say whether any, or what charges have been substantiated, and conceive that they are not authorised to make any report, except to the legislature.

If, however, the committee of bank think it necessary to produce any evidence in their behalf, a full and fair opportunity will be given; at the same time the committee of legislature reserve the right of asking questions, and of examining any witness which they may deem proper.

*Bank of Pennsylvania, January 12, 1829.*

The bank committee inform, that they will be prepared at 8 o'clock this evening to commence testimony in relation to the concerns of the bank.

Very respectfully yours,

WILLIAM SANSOM, *Chairman.*

J. R. BURDEN, Esq. *Chairman.*

*Bank of Pennsylvania, January 15, 1829.*

SIR,

The bank committee have instructed me to make to the committee of the legislature the following communication:

In relation to the evidence which has been brought before you, the object of which was to implicate the conduct and character of

the cashier, we have the satisfaction to state that we have received from that officer, such full, free, and confidential statements and explanations as are perfectly satisfactory to us; and after full consideration of the subject, we have resolved, that it is not consistent with that confidence which the bank necessarily reposes in its officers, nor with a proper regard to the interests of the institution, that the cashier should make his explanations a matter of publicity. In the private business of the cashier, the committee do not find that Mr. Chauncey has done what is not allowed to every responsible customer of the bank.

Very respectfully yours,

WILLIAM SANSON, *Cashier.*

Jesse R. Burden, Esq. *Chairman*  
of the committee of the Legislature.

*Specie on hand.*

Boxes silver	\$119,000 00
Bags do	4,227 41
Cents in casks	2,507 45
Gold	2,154 10
	<hr/>
	127,888 96
	<hr/>

January 15, 1829.

Handed in by Mr. Smith, first teller, on affirmation.

*Bank of Pennsylvania, January 16th, 1829.*

SIR.—Five questions proposed to the cashier, are the yesterday only questions which are known to remain without an answer. If there are any other questions which have not been answered, we respectfully request they may now be specified.

The answers of the cashier to the five questions proposed yesterday, will be prepared and forwarded early next week to Harrisburg, as recommended by Dr. Burden.

Very respectfully,

Yours,

WM. SANSON,  
*Chairman.*

J. R. BURDEN, Esq. *Chairman.*

*Resolved,* That the sum of \$500,000 of the stock of the commonwealth of Pennsylvania held by this bank, be offered at public auction, at the Merchants' coffee house, on the inst., and that this sum, or such portion of it, shall be sold as can be effected at saving prices to the institution.

Offered by Mr. Sullivan.

2d January, 1829.

The joint committee of the legislature proceeded to the examination of witnesses on oath and affirmation, relating to the affairs of the Pennsylvania bank. When witnesses were called to answer the following questions, viz:

*Abraham Okie*, being affirmed.

Question. Was the protest of Abraham Okie, John T. Sullivan and Thomas Cave, directors of the Pennsylvania bank elected by the legislature, dated 12th July, 1828, presented to the board of directors, and was it requested to be entered with the minutes; and was it entered on the minutes?

Answer. On the 12th July, 1828, I stated to the president, "Sir, I hold in my hand a paper in the nature of a protest, which I wish to present to the board, in order that the same might be put on the minutes; no objection was made to the reading. I proceeded to read the paper. After I had gone through the reading, I read the signers; on this I handed the paper to the president, who observed "this paper contained serious charges; charges that are false, or unfounded, or untrue;" I think was his expression. Mr. Sullivan said, "will the president be good enough to point out what is not true, and if not found to be so it should be expunged" —I made an observation to the same effect, so did Mr. Cave. A motion was made by a member of the board, that the paper should be laid on the table; that course was objected to by all who signed the paper, alleging that as it was a protest, it could not take that course, but must, as a matter of course, be put on the minutes. The president said the charges contained false charges and not true; that it was an attack on the reputation of gentlemen of the board, that it should lay on the table in order to have a chance to repel such charges which the paper contained.

The observations gave rise to some remarks from the party presenting the protest.

When the question was called for and the president was putting it to the board, I rose and stated that inasmuch as an illegal course was about to be taken by the board, and as the president had expressed his opinion warmly on the matter, and had endeavored as I conceived to bias the vote of the board, and as I would not suffer the paper to take the course suggested considering it improper and illegal, and considering it to be my property under the circumstances, I would take it and put it in my pocket, which I did.

The president at that time did not demand it again. This is the paper marked A.

On the 16th of July, 1828, the following resolution was entered on the minutes. *Pro ut minutes.*

16th July, 1828, message from the bank of Pennsylvania to A. Okie. *Pro ut minutes.*

17th July, 1828, letter A. Okie to president of the bank.

The bank never furnished me with a copy of the resolution.

**Q.** Did the committee of the Pennsylvania bank report their proceedings relating to the state loan or loans to the board of directors?

**A.** The loan committee did report to the board that they had taken the whole of the loan. The committee acted under the authority of a resolution of the board; when the report of the committee was presented to the board some altercation took place; some of the late directors desired that all the parties to the loan should be entered on the minutes. This was objected to by some: a list of the names was handed round the board; I considered that unofficial and wanted it on the minutes, which gave rise to some altercation between the conflicting parties. Finally, it was carried that it should be entered on the minutes.

(Resolution 21st June, 1828. Pro ut minutes.)

**Q.** Was the loan of \$2,000,000 to the state, taken without the order of the board of directors?

**A.** The board of directors raised a committee for the purpose of taking the loan into consideration; that committee never reported until they came in with a report that they had taken the loan; that is, the board did not understand, or I did not understand whether they had taken the whole, or part, until they reported that they had taken the whole of the loan.

**Q.** Did the bank or any officer of the bank, without the consent of the board of directors, form any connexion with any individuals or corporation in the purchase of the late state loan?

**A.** I do not know of my own knowledge that any officer of the bank did?

**Q.** Is any officer of the bank not a director permitted to participate in the councils of the board of directors, and give his opinion as to the propriety or impropriety of any measure before the board?

**A.** I have heard the cashier express his opinion respecting discounting paper.

**Q.** Is it usual for committees to contract for loans or to make purchases or investments, without first reporting to the board and obtaining its sanction?

**A.** Yes Sir, a committee was raised on a former loan, and to the best of my knowledge the committee never reported to the board until the cashier reported that he had been to Harrisburg, and had taken the loan. I think it probable that the committee empowered the cashier to go to Harrisburg for that particular purpose. I think he stated also, that for the purpose of taking it on better terms for the bank, he had to let Messrs. Biddle's participate in order prevent them from being competitors.

Pro ut minutes, 15th June, 1827.

Letter Secretary of commonwealth to cashier of the Pennsylvania bank. Pro ut minutes.

Q. The committee appointed to contract for the loan of 2,000,000, of what number did it consist?

A. I think the committee consisted of five.

21st June, 1828, resolution appointing a committee of loans. Pro ut minutes.

Q. What are the names of the persons who joined with the bank in taking the loan or loans, and who of them were directors or officers of the bank?

A. I refer to the minutes, 9th June, 1828.

Q. Has the investment in the state loan tended to decrease the amount necessary for proper banking operations, has it caused any good paper money to be thrown out, and if so, what amount?

A. I have no hesitation in saying that so far as my judgment goes, it has had an effect of throwing out paper to a considerable amount, and produced an effect to injuring the business of the bank very materially, by holding so much stock.

Q. Were individuals prevented from the opportunity of subscribing to the state loan, from the impression that the bank would take it all?

A. So far as I have any knowledge it had the effect of preventing individuals from offering for the loan.

Q. Has the bank disposed of any of the stock in the state loan, if so, how much and at what advance, and how soon was this advance fixed after the investment?

A. Impossible to tell how much they have sold. I understood by one of the committee that they had fixed it at 6 per cent. I refer the committee to the books of the bank.

Q. Has the bank loaned to any of the partners in the the stock, and if so, how much?

A. I refer the committee to the books.

Q. Is the bank responsible for the stock taken by individuals; if so, to what extent?

A. My understanding of the matter was, that the bank took the whole of the loan, consequently the bank is bound for the whole.

Q. Had the said partners been in the habit of previously receiving loans from the bank; if so, to what extent?

A. Yes sir, some that participated in the last loan had had previously large accommodations from the bank.

Q. Do you believe that the loan was taken to the disadvantage of the bank or of the state?

A. My opinion is, it was taken to the disadvantage of both.

Q. Has the board been unable to discount in proportion to the capital of the bank, owing to the large amount of stocks held by her?

A. I think she has most unquestionably.

Q. Are brokers great favorites with the bank?

A. I think they have for some time back.

Cross examination of A. Okie; answers to questions by committee on behalf of the bank.

Q. Is, or is not the paper or protest, which you have this day handed to the chairman, and which he has marked A, the identical paper or protest, containing all the same words which you read to the board of directors on the 12th of July last, without any alteration, addition or amendment? If any alteration, addition or erasure has been made, be pleased to designate?

A. This is the same identical paper without any alteration except the word 'to,' which was 'or,' originally, being a mere slip of the pen; it is the same paper in every sense of the word—I did not design to charge any person who was not implicated or in fault.

Q. When you took the paper or protest from the director's table and put it into your pocket, on the 12th of July, did or did not, the president immediately require you to restore it; and was, or was not this request urged by other members of the board?

A. No sir. The president did not at that time urge me to restore it, some of the gentlemen afterwards said it was the property of the board.

Q. Do you, or do you not know any fact which proves, or tends to prove, that any committee, or any officer of the bank, has at any time taken any loan, or bought or sold any stock or united with any partners to take stock, without full powers from the board of directors for the purpose? If you know any such fact, be pleased to state it minutely.

A. I do not know that any such question was submitted to the board whether the bank should take stock in conjunction with others or not. The committee negotiated those loans and not the board—these committees report, and their report is generally adopted.

Q. In your answer to the 10th question, you say that individuals were *prevented* from offering for the late loan. Will you, or will you not state the names of the individuals who were thus prevented; also the names of those directors or officers of the bank who prevented them, and the particular facts on which the affirmation is made?

A. No, I don't know any particular fact of that kind.

Q. Do you, or do you not know any *fact*, which proves, or tends to prove, that the president or cashier of this bank has owned, or participated with others in taking any part of the state loan, or that he has derived any profit or emolument to himself, in the form of a commission or otherwise, from any person or persons whatever, for any services or negotiations of any nature or kind, arising from, or out of said loan? If you know any such *fact*, be pleased to state it minutely.

A. The bank took the whole. Would refer the committee to a Mr. James Schutt. Mr. Carothers said he was called on, I think by Mr. Schutt. Mr. Smith said their bank had desired to get a part of it, but suddenly heard the bank of Pennsylvania had taken the whole of it, and did hear that Mr. Pepper was called on. As to any particular individual, I cannot name any; know nothing, only from common fame.

Q. Do you, or do you not know any fact, which proves that the president or cashier of this bank, has been directly or indirectly concerned for his own advantage, in the purchase or sale of any of the public stocks or funds? If you know any such fact, be pleased to state it minutely.

A. I know nothing of that fact, only from common fame.

Q. Do you, or do you not know any fact, which proves, that the agreement made with Messrs. Thomas and John Biddle, in June 1827, by which they took 200,000 dollars of the loan of 1827, (as mentioned in your answer to question No. 6) was made by the cashier, without the direction of the committee appointed with full powers, on the 13th day of June, 1827? If you know any such fact, be pleased to state it minutely.

A. I cannot answer the question, because I do not know what passed between the cashier and the committee—do not know what powers the committee gave the cashier.

*John T. Sullivan, sworn.*

Q. Was the protest of Abraham Okie, John T. Sullivan and Thomas Cave, directors of the Pennsylvania bank, elected by the legislature, dated the 12th July, 1828, presented to the board of directors, and was it requested to be entered on the minutes; and was it entered on the minutes?

A. The facts as stated in reference to the question by Mr. Okie, are substantially correct.

Mr. Okie did offer a protest, signed by himself, Mr. Cave and myself, and having read it desired it to be placed on the minutes. The president having taken up the paper, to look at it, became very much excited; observed that it contained falsehoods and unfounded statements. I got up and stated, that if the president would point out any thing that was not a fact, it should be erased; this was repeated by myself, I believe by Mr. Okie and Mr. Cave. The president did not point out any thing in that way, as I requested; he said it was a charge of slander upon himself, as having been concerned in stocks, and stating at the same time, that he had not any concern, directly or indirectly in the stocks. I replied to the president, that he was not the officer in the minds of the protestors—that they did not suspect him—there was a great deal of commotion—a motion was made, I think by Mr. Ridgway, that the protest should lie on the table. I told the chairman, I did not think that motion was in order; for if they had a right to postpone for a definite time, they had for an indefinite. The president decided that the motion was in order; and while the question was under

debate, there were several calls for the question, from what we designate the *administration* side of the house: the proposition of the president generally carries. I suggested to Mr. Okie, that the better way would be to withdraw the paper, or we should never see it again, unless they would agree to put it on the minutes.— When the question was about to be taken, Mr. Okie lifted the paper: after some time it was suggested the paper was the property of the board, and ought to be left with them. Mr. Okie observed, that as an improper and illegal course was about to be taken, he considered the protest as his. I believed that I then stated that if the majority would promise to put the documents on the minutes, they should have it. This proposition was not acceded to, and the protest was taken away by Mr. Okie.

The paper marked A, I believe to be the protest alluded to.

**Q.** Did the committee of the Pennsylvania bank report their proceedings relating to the state loan or loans, to the board of directors?

**A.** The committee did make report, and the cashier who appears to be the agent of the committee, explained by stating, that the bank took \$500,000 and something over, and the rest was taken by individuals. I think Mr. Palethorp offered a resolution, that the names of the parties to the loan should be entered on the records. The motion was opposed by several of the gentleman, and among others by those who were parties.

Resolution, 9 July, 1828, pro ut minutes.

**Q.** Was the late loan of 2,000,000 to the state, taken without the order of the board of directors?

**A.** Yes, Sir, the 2000,000 loan was taken by the bank, without the order of the board. I believe the cashier negotiated the loan by instructions of the committee, but not by order of the board.

**Q.** Did the bank, or any officer of the bank, without the consent of the board of directors, form any connection with any individual or corporation, in the purchase of the late state loan?

**A.** I do not know, except from common fame.

**Q.** Is any officer of the bank, not a director, permitted to participate in the councils of the board of directors, and give his opinion as to the propriety or impropriety of any measure before the board?

**A.** Yes, the cashier's influence with the board is very considerable, he does not often communicate it aloud, but does it through the president. On some occasions he does so distinctly. There was a proposition of a broker to loan on hypothecated stock of the Ohio canal, discount to be made on that security; cashier read some papers and letters, I believe some printed documents, to show the soundness of the security. It requiring three-fourths to discount, I opposed it and gave my reasons at length, the board being thin it was negatived—this about was 18 months ago.



**Q.** Is it usual for committees to contract for loans, or to make purchases or investments without first reporting to the board and obtaining its sanction?

**A.** I believe in all instances, as far as my recollection serves me, they act independent of the board without any authority. It requires three fourths to do a discount, a majority can carry the appointment of a committee; invest that committee with power to loan money. This committee is appointed to consider of the propriety of loaning money; the committee makes no report until they make final report. They make a loan without telling the board they have done so.

**Q.** Has the investment in the state loan, tended to decrease the amount necessary for the proper banking operations; has it caused any good paper to be thrown out, and if so, what amount?

**A.** It has caused a good deal of good paper to be thrown out, and has impaired the commercial concerns of the bank very materially, and crippled its means very much.

**Q.** Were individuals prevented from the opportunity of subscribing to the state loan, from the impression that the bank would take it all?

**A.** That, I have no direct knowledge of.

**Q.** Has the bank disposed of any of the stock in the state loan; if so, how much and at what advance, and how soon was this advance fixed after the investment?

**A.** I believe the operations of the stock committee have not been able to effect much—refer to the minutes.

**Q.** Has the bank loaned to any of the partners in the stock, and if so, how much?

**A.** Refer to the books.

**Q.** Is the bank responsible for the stock taken by individuals, if so, to what extent?

**A.** The bank by representation of the cashier, made herself responsible for the whole, having taken the whole stock.

**Q.** Had the said partners been in the habit of previously receiving loans from the bank, if so, to what extent?

**A.** Some of the participators in the loan have been very large borrowers of the bank, some \$80,000, some \$50,000.

**Q.** Do you believe that the loan was taken to the disadvantage of the bank, or of the state?

**A.** Most unequivocally, I answer to the great disadvantage of both.

**Q.** Has the board been unable to discount in proportion to the capital of the bank, owing to the large amount of stocks held by her?

**A.** The board has been disabled from discounting on account of the stock. Bank has lost some of its best customers on account of

want of funds, this pressure commenced in November, 1827, and continued until spring—we threw out a great deal of paper immediately previous to the loan. During the months of May and June, since we have taken the loan, we have thrown out a great deal of excellent business paper, which would have been profitable to the bank; some of the best paper has been frequently refused some of the oldest customers.

Q. Are brokers great favorites with the bank?

A. Yes, the brokers are great favorites with the bank. Loans to brokers were made at 5 per cent. while other customers paid 6 per cent.

3d January, 1829.

*John H. Palethorp, affirmed.*

Q. Was the protest of Abraham Okie, John T. Sullivan and Thomas Cave, directors of the Pennsylvania bank, elected by the legislature, dated the 12th July, 1828, presented to the board of directors, and was it requested to be entered on the minutes, and was it entered on the minutes?

A. I think it was requested to be entered on the minutes, though it was not done.

Q. Is any officer of the bank, not a director, permitted to participate in the councils of the board of directors and give his opinion as to the propriety or impropriety of any measure before the board?

A. Mr Chauncey sometimes when asked questions by a member of the board, always answers—but did not know of him making any proposition to the board.

Q. Has the investment in the state loans tended to decrease the amount necessary for proper banking operations—has it caused any good paper to be thrown out, and if so, to what amount?

A. Yes sir, there has been a great deal of good paper thrown out for the want of means.

Q. Were individuals prevented from the opportunity of subscribing to the state loan, from the impression that the bank would take it all?

A. That I know nothing about, not being at Harrisburg.

Q. Do you believe that the loan was taken to the disadvantage of the bank or of the state?

A. I do not know whether it was to the disadvantage of the bank or not.

Q. Are brokers great favorites with the bank?

A. Can't say how that is.

Q. Was there any arrangement or understanding between the members of the loan committee as to the proportion of stock which any of them should have?

A. We agreed to take so much of the loan; I wanted the bank to take the whole, could not succeed, so I went with the majority:

each one said how much he would take, Mr. Brown said he would take so much, Mr. so much, and I presume any one could have a slice; each one took what they proposed to take; Mr. Chauncey had a list.

Q. What amount was the bank willing to subscribe to the late state loan?

A. A great deal of conversation took place before the committee, I answer \$500,000. The gentlemen of the committee said that if the money went through the bank they would profit and have the other banks in debt, that the deposits would all be made in this bank.

Cross examined by bank committee.

Q. Whether on the last Saturday after the meeting of the board, at the last meeting of the committee on the loan, after several previous meetings, was there not still a deficiency of subscriptions to the whole sum, which the bank did not wish to take, and whether you did not propose that some of the monied men of the committee should take as much more as would make up the whole amount; and was there not a manifest anxiety on the part of the committee that the loan should succeed.

A. Yes, there was.

By the committee of legislature.

Q. Did the committee on the loan of 1828, fix the terms, and was the cashier desirous to offer for the loan of two millions previously to his going to Harrisburg, or had the cashier any discretionary right, if so, what were these terms?

A. I do not recollect that the cashier was desired to offer for the loan, but the cashier was authorised to go to Harrisburg to take a part of the loan. I think the committee fixed it at par. I don't remember the terms, but it will appear by a reference to the minutes.

January 5, 1829.

*Elihu Chauncey, cashier, sworn.*

Q. What are the circumstances under which the president grant discounts without the order of the board?

A. I do not think that the president has made any discount recently, while there has been a pressure for money. When money has been very abundant for several years past, it has often been the case that a committee has been appointed to lend a certain amount, that amount by a resolution of the board has been generally fixed on pledges of stock. Those powers from the board have always been full and absolute. Those committees have never been appointed to consider the propriety, but to lend the money. I believe the president has always been a member of the committee. If it was a large sum he would convene the board, but if a small sum, 10 or 15,000 dollars, he would act without convening the board. Don't know that the president ever done a large discount without convening the committee. I have in some instances, when money was abundant and paper much wanted by the

bank, on a day not a discount day, carried to the president business notes which were offered, and has ordered them to be put upon the books. The president has also been in the habit, when accommodation paper which was forgotten or neglected, to order the renewal to be placed on the books after the board had adjourned, and these notes he thought the board would have passed any how. It has always been considered that there are cases which arise out of the nature and necessity of the business, and which has been practised in all the other banks of the city.

Q. Has the board in all instances been informed at the next discount day, of the discounts so made by the president, and are there any instances in which the information has been withheld from the board of directors? Has the president been sustained in these discounts, and if so, were they greater than when made by the board?

A. I do not know that any individual has, but if he has not, it was his own fault. Those notes have not always been particularly read off at the board, but they have been placed on the books for the inspection of the directors.

I know of no instance in which they have been withheld from the directors.

I never knew an instance where the board have found fault with the president for making a discount, and I don't think there is an instance in which there was a loss in consequence of a discount made by the president. The discounts made by the president were generally very small.

Q. Have brokers been accommodated in your bank to the exclusion of business customers? At what rate do brokers, or at what rate have brokers obtained money in the bank?

A. I don't think they have to any great extent. The answer given by the committee, on the part of the bank to question 19, I believe to be correct. When brokers have obtained money on deposit of stock, they have obtained it on the same terms that any other individual would have obtained it on deposits of stock.

Q. Who were the individuals and corporations with whom arrangements were made with regard to the late loan, and who refused to participate in the said loan? please state minutely.

A. The names of the persons are stated in the answer of the bank committee to question No. 26. Of those who declined to participate, I called on the president of the bank of North America, the cashier of the Farmers' and Mechanics' bank, cashier of Philadelphia bank, cashier of Montgomery county bank. I believe I also wrote to the cashier of Harrisburg bank, to Hale and Davidson. I don't recollect particularly all the individuals, but saw a number of persons, and said they could participate in the loan if they required it. I mentioned it also to the cashier of the Mechanics' bank, and to the president of one or two insurance offices, and generally I believe I mentioned it to such moneyed men of my acquaintance as thought would likely make such an investment.

These gentlemen spoken to, understood that they were to take the loans on the same terms of the bank, but that the expense might be apportioned among them *pro rata*. In all this I acted by the instructions of the committee.

The less the bank had would be more agreeable to the committee.

Q. In the loan of \$920,000, what was the reason that induced you to associate with the Messrs. Biddles? please state minutely.

A. In answer to that, I refer to the answer of the committee of bank to the question proposed on the 2d January, and to the 4th observation under No. 26; I believe all that strictly true.

Q. At what periods has the bank been most pressed for money, and at what time have you been so situated as to be unable to discount good paper;—has the pressure been general, or was it confined to the bank of Pennsylvania; or what were the different causes of a scarcity of specie?

A. The demand for money has been considerable for the last 6 or 9 months. During that time, a vast amount of good paper has been discounted at this bank, and not a very great amount excluded. I believe the pressure has not been confined to the bank of Pennsylvania.

The general cause of the scarcity of specie is the cause of overtrading, the specie being taken to other places; but the pressure for specie has not been extreme, or not been greater than on many former occasions.

Question 9 will be answered in writing.

Question 10 will be answered in writing.

Q. Are shares of bank stock divided in small parcels, to enable those who have no interest, to vote as owners, and thus to influence the election of directors—if so, by whom?

A. I know of no instance where they have been divided for that purpose.

Q. How many proxy votes were given, in 1826, 27, 28; and what number was given in person?

A. In the year 1826, by the books, proxy 59; by person 51.

In 1827, as appears by the books, proxy 39; by person 104.

In 1828, as appears by the books, proxy 69; by person 75.

Q. Have you ever obtained proxies, from persons who came to receive their dividends, or at other times, if so, by whom were they given, for whom, and what number of votes were so obtained?

A. I don't recollect that I ever asked a person for his proxy, since I was cashier. They were often sent to me. I have obtained a great many—I believe I once wrote to Mr. James Bayard, for his proxy, but before I was cashier of this bank.

Q. What quantity of notes and bullions, have been supplied to your branches respectively, and what is the state of said branches?

A. For answer, see statement in appendix.

Q. Did you ever intimate directly or indirectly, to a director, that you had, in your desk what would elect a director; or use that or any other means, to intimidate a director in his votes?

A. Never.

Q. Who is liable for any loss of specie incurred?

A. I presume the liability in each case of loss, would be decided by the board of directors, according to the circumstances of the case. If the loss were by fraud, or culpable neglect, the guilty person would be liable. If it were by mistake, or by occurrences such as ordinary care and circumspection could not guard against, probably the board of directors would decide that the bank should sustain the loss.

The specie is received and counted, as it comes into bank, by the second porter, under the direction and superintendence of the receiving teller. On the next morning, it is delivered over to the first porter, who counts it under the inspection and examination of the paying teller. It is also the cashiers duty to see, that the money is counted, and delivered over to the paying teller; that it is correctly entered in his statement; that it corresponds with the sum as received on the previous day, and that the settlement of the cash accounts is correct. Its entry in his statement by the paying teller is a receipt to those in whose possession it had previously been, and it charges the paying teller for it in account and responsibility.

From this time, the immediate care of it is with the paying teller. He keeps the keys of the vault in which it is placed, and no one has access to it but through him. Under his direction and inspection, the first porter brings it out of the vault for use, as the business of the bank requires.

Q. What compensation do you receive as commissioner of loans?

A. I have never received any thing—there was no compensation agreed on.

Q. Was there a draft of the State Treasurer protested for non-payment?

A. There was one draft, for a large amount refused, because there was not sufficient funds to the credit of that account to meet it—it was paid a few days after.

Q. In the loan of \$2,000,000, had the bank decided on the premium it would give, and was this decision of the bank communicated to the corporation or individuals who were called upon, but who declined participating in the loan?

A. At the time I called on those persons it had not been decided, but was generally understood that the bank would offer to take it; or we should offer at par or about par.

Q. Has there been any over draft upon the bank, since the statement made was handed into this committee?

A. A draft came in, by which it appeared that a broker had over drawn about \$6000, since that statement was made, but it is expected the money will be recovered. Measures have been taken to recover it; the president was engaged in it this day.

**Q.** What amount of money has been lent to each of the partners in state loan, and for what times, and at what rate, since the loan has been taken? Were any of the drawers endorsers also; if so, what amount respectively?

**A.** On the 20th December last, one business note for \$4,916 58 was discounted for one of the houses engaged in the late loan, and will be due 18th instant. On the 19th July last, two business notes, for 5000 dollars each, were discounted for another person who had a part of the same loan, one of which notes was paid, August 19th, and the other on the 10th of September last. And on the 30th of August, two business notes for 5000 dollars each, were discounted for the same person, both of which were paid on the 10th November last. On the 12th July, one business note for 2500 dollars was discounted for a house engaged in the late loan, which was paid on the 12th September. On the 2d August, another business note for 2850 dollars was discounted for the same house, which was paid on the 2d January, 1829. On the 14th November, another business note for 3200 dollars, was discounted for the same house, which will be due on the 15th instant. On the 27th Dec. another business note for \$1572 50 was discounted for the same house, which will be payable on the 21st February next. On the 3d instant, another business note for 1500 dollars was discounted for the same house, which will be payable on the 25th of April next. On the 9th of July last, a note for 2000 dollars was discounted for another person engaged in the same loan, and on the 10th of September, was renewed for 60 days, and paid on the 12th of November last. These I believe are all the loans made to those persons engaged in the last state stock; and that none of the drawers were indorsers also, on any of the notes.

**Q.** Did the bank furnish any capital to any of the participators in the loan, to enable them to pay their instalments to the said loan of \$2,000,000?

**A.** No sir; bank furnished no capital to any person to enable them to accomplish that object.

**Q.** If the stock, or any part of it, created by the late loan to the state—sold in a few days after the loan was taken, at an advance, to what circumstance was the rise of price owing, and also were not other stocks selling at an advance at the time the said state loan was taken. If the latter part of this question be answered in the affirmative, please state the names of the stocks; and at what rate they were selling?

**A.** I am not knowing to what circumstances any rise of price was owing, at which any part of the stock of the late loan to the state may have been sold a few days after the loan was taken at an advance. The first sale of the stock of 1828, made by this bank, after it was taken, was of *one thousand dollars* on the 10th of October, 1828, and the price at which it was sold was five per cent. premium. The buyer taking the interest from the 1st of August.

*John T. Sullivan*, further examined.

Q. Did or did not the cashier report to the board that the Messrs. Biddles were permitted to participate in the loan of 1827, if so what reasons did he give for so doing?

A. The cashier did state at a meeting of the board, that he was compelled to let the Biddles participate in the loan of 1827; because they were prepared to take the whole at an advance premium, and to give as high as seven per cent. He further stated there were other bids at a higher advance—that the York bank had offered ten per cent. for a part.

Q. Does the cashier, or any officer of the bank, not a director interfere with the deliberations of the board of directors in relation to discounts; if so, in what manner, and on what occasions?

A. The cashier does very frequently interfere. He frequently states that the person offering is well accommodated; in other instances, he says they have no claims. He gives his opinion as a director does, and has more influence than any director except the president.

Q. Is not the cashier from his office better enabled than others to speak of the solvency or insolvency of applicants to the board for discounts?

A. In reply, I would say he is not, nor do I think he is so well qualified.

*John White*, one of the directors, sworn.

Q. Did or did not the cashier report to the board, that the Messrs. Biddles' were permitted to participate in the loan of 1827; if so, what reason did he give for so doing?

A. The cashier did report that the Messrs. Biddles' had taken a part of the loan, by directions of committee. I do not recollect what reason he gave. (Minutes 14th July, 1827, 13th July, 1827.)

Q. Does the cashier or any officer of the bank, not a director, interfere with the deliberations of the board of directors, in relation to discounts. If so, in what manner and on what occasions?

A. The cashier is very frequently asked his opinion—he gives it. His information is very useful as to the standing of persons here. The directors are not at liberty to examine individual accounts.

Q. Is not the cashier from his office better enabled than others, to speak of the solvency or insolvency of applicants to the board for discount?

A. I should think that of some persons he was better enabled than any other person, and that of other persons some of the directors knew better than he did.

*January 6th, 1829.*

*Thomas Cave*, sworn.

Q. Does the cashier, or any officer of the bank not a director, interfere with the deliberations of the board of directors in relation to discounts; if so, in what manner and on what occasion?



A. I have not known an officer to do so directly. I have heard the cashier suggest the propriety of not discounting certain paper; the words "having no claims" has sometimes been mentioned by the cashier, of certain individuals offering paper for discount.

Q. In your opinion, who was most benefitted by the bank taking the late loan of two millions, the state or the bank?

A. I think it was taken to the disadvantage of the bank and of the state in consequence of the bank having taken the loan at 5 per cent. interest. It was not the interest of the bank to have taken it at the time, inasmuch as it could have got business paper at a better per cent.

Q. Has the bank by her operations in stock been compelled to throw out good business paper offered for discount?

A. I believe it has been the means of throwing out good paper; but to what amount I cannot say. I think we would have been able to shave down more good paper, had it not been for the operation in stocks.

Q. Was it understood generally in the Philadelphia stock market, that the bank of Pennsylvania had obtained a good bargain in getting the state loan of two millions *at par*, and could more have been had for it, had it been open more publicly than it was to the people, and was it not understood in the city, that the bank would prevent competition by taking the whole loan, with brokers and others?

A. I am not able to say from my own knowledge whether more could be obtained or not, but it was the opinion out of doors that the bank had made a very excellent bargain in taking the stock at par. This was my opinion, founded on the opinion of others, who had better opportunities of judging than myself. It was understood very generally in the city that the bank of Pennsylvania intended to offer for the whole loan, in consequence of which, I am of opinion that it prevented a competition, and a better price than was given for the stock.

Q. Has the board ever discounted large amounts for brokers, when she was at the same time refusing good business paper of small amounts to the regular customers of the bank?

A. Brokers have been accommodated with considerable sums of money, when there was a pressure, and consequently considerable good business paper thrown out.

Q. Do you know of any discount being made without the consent of three fourths of the directors present?

A. I do not recollect.

*Questions by the committee of the bank.*

Q. What is the sum total discounted for brokers since the last loan was taken?

A. I cannot tell, the books will show:

## BANK REPORT.

*Mr. Cave explained the following loans to brokers.*

1st November, 1828, \$11,000 for ten days for a house in city, who are brokers.

8th November, \$8,000 a loan to the same house, due on the 25th November.

26th November, \$7,000 loaned, due on 20th December.

20th December, due 7th January \$7,000.

I would take it for granted, from the appearance of the shortness of the date, that they were *renewals*.

For another house \$2,500, due 12th September.

Another \$2,850, due 2d January.

Same house \$3,200, due 15th January.

Another \$1,572, due 21st February.

Another \$1,500, due 25th April.

Another \$4,900.

These are all the items that has been furnished me by the clerks as loans to brokers. I presume they were regularly discounted.

The 11, 8, 7, and \$7000 loans, were made to one person, which they have had on pledges of stock before I came into the bank, to the amount of \$133,000, the house that has now 4900 dollars; the above amount of \$133,000, was on pledges of stock at 5 per cent.

On the 9th of January there was \$100,000 due, but on my first coming into bank it was \$133,000.

*George R. Smith, first teller, affirmed.*

**Q.** Have you at any time knowingly permitted brokers or any other persons to overdraw the bank to any considerable amount, or have you been directed to do so, and if so, by whom, to whom and when?

**A.** I have frequently paid checks to brokers and others when there was no credit to them, but it has been at an early hour in the day, when I expected there would be deposits before the bank would close. I was not directed to do so by any one. I do not recollect any particular day or person, but has been done frequently since I have been teller, and was the practice. I have been teller above twenty years. The drafts have frequently been large; frequently by brokers and others. One was paid a few weeks ago to one a broker. One a few days since was paid to John Wharton. I paid these checks without the order of any person.

**Q.** Did you count the money in the vault, and was the amount such as has been furnished in the last annual statement? Was any money borrowed directly or indirectly, or was any check passed to deposit in order to make up that amount?

**A.** The specie in the statement comprehends the specie in the different branches and our own. The specie in the vault here, on that day was \$149,809<sup>10</sup>/<sub>100</sub>. When I say specie, I mean silver and gold. No money borrowed to make up the amount, as I recollect, nothing of that kind done.

**Q.** Do you know whether the cashier, president or any other officer of the bank speculates in stocks or funds of any kinds, if so, please state minutely?

**A.** I do not know that any of them do.

**Q.** Does the cashier, president or any other officer of the bank, keep accounts therein? if so, are any of them in the habit of over-drawing the same?

**A.** The president and cashier keep accounts in the bank. I know of no other officer. They are not in the habit of overdraw-ing.

**Q.** Has the cashier of late years kept a very large account in the bank? if so, what amount do you suppose passes through the bank in a month of his account?

**A.** I am not particularly acquainted with the cashier's account. I pay a good many of his checks, but dont know the amount of his account.

**Q.** Has the cashier ever used or converted the funds of the bank to his own use in any way, If so, state how? Has the cashier ever overdrawn the bank, if so, state when and to what amount?

**A.** I dont know that I can say he has converted the funds of the bank to his own use.

I have heard of his having overdrawn. The book-keeper told me so, but dont know of my own knowledge.

*George Philler, assistant to first teller and state stock department, sworn.*

**Q.** Has Mr. Chauncey or Mr. Norris, or any other officer of the bank received certificates and transfers for any part of the late loan of two million in their own name or in any other names for their use?

**A.** None.

**Q.** To whom was the stock of the late loan of two millions transferred to, by the original subscribers and in whose names does it now stand?

**A.** "I do not know."

**Q.** Who made the first transfer on the books of the late loan of two millions? Was not a great amount of the stock sold and transferred by the Messrs. Biddles and others, before the bank sold any stock, and was it not understood that the bank asked one half per cent. more for her part of said loan?

**A.** I have no knowledge whatever.

*George Clay, 2d book-keeper, sworn.*

**Q.** What has been the amount of the cashier's account, and has he ever deposited checks to be placed to his credit and drawn money upon them, if so, when were those checks paid, and to what amount has he so deposited, and have such facts been known to the board?

A The cashier's account for the last year, that is up to August, was about \$500,000, it has rather decreased since that time. He has deposited checks to be placed to his credit and drawn money upon them. Can't say when they were paid—paid at various times. Checks on another bank were deposited, can not say they were good. Under certain circumstances it is customary to deposit checks on other banks; checks so deposited always go to the bank, on which they are drawn the first exchange day. The checks deposited by the cashier have taken *the same course*. It is the routine of the banks in *the city* to do business in *that way*. I dont know whether the facts were known to the board

Q Has the cashier ever deposited moneys belonging to other persons or banks to his own credit, when the same should have been deposited to the credit of the proper owner?

A The cashier has been in *the habit* of applying cash remittances from other banks to his own credit instead of that of the bank, by which the remittances were made; some remittances were not credited on *the day* on which they should be credited, but were credited to the bank in a day or two after.

Question by bank committee.

Has the cashier's account been overdrawn, if so, when, for what amount and how long?

A In 1828, in September. was a small overdraft between 2 and 300 dollars; it was paid the next day.

*William S. Evans, 2d teller.*

Q Have you at any time knowingly permitted brokers or any other persons to overdraw the bank to any considerable amount or have you been directed to do so, and if so, by whom, to whom and when?

A I believe I have not at any time permitted them knowingly beyond the usages of the bank; dont recollect that I ever received such direction

Q Do you know whether the cashier, president or any other officer of the bank speculates in stocks or funds of any kind, if so, please state minutely?

A I do not.

Q Does the president, cashier or any other officer of the bank keep accounts therein, if so, are any of them in the habit of over-drawing the same?

A The cashier and president keep accounts in the bank: I dont know of their overdrawing.

Q Has the cashier of late years kept a very large account in the bank, if so, what amount do you suppose passes through the bank in a month of his account?

A I dont know what amount.

Q Does the cashier ever put any checks in your drawer and

take out notes for the same when said checks are not due, and are not placed to the debit of any one in this or any other bank for several days afterwards, and are considered by you the same as money?

A Yes sir, the cashier does put in my drawer checks and take out notes for the same, when said checks are not due and are not placed to the debit of any one in this or any other bank till the next morning, and are considered by me the same as money. They are never kept by me longer *than* the next morning, except on Saturday, in that case laid over till Monday.

*Benjamin Smith, Cashier's clerk, affirmed.*

Q Has the cashier ever deposited the moneys belonging to others, persons or banks, to his own credit, when the same should have been deposited to the credit of the proper owner.

Q I believe he has in relation to banks, as to persons I do not know. Some years ago I was assistant clerk, the amount of 2,000 dollars was collected, was not placed to the credit of the bank on that day, but was placed to the credit of Mr. Chauncey. It was placed to the credit of the bank one or two days after.

There have been a number of instances since,—I do not recollect distinctly, they have been so numerous. This practice was confined solely to the cashier: I believe it was not known to the board of directors.

*William Clarke, discount clerk, sworn.*

Q Does the cashier ever place notes in the discount books, without their having first been submitted to the board of directors?

A I have no recollection of the cashier ever placing notes on the discount books, without my being impressed with the idea that he had previously submitted them to the president. I always believed he had previously submitted to the president. When the notes were large, and I had no knowledge of the president knowing, I always invited the attention of the president. In all instances I believe the president sanctioned them. Sometimes committees were appointed: at such times they discounted very large notes, on pledges of stock. No notes have been placed in the discount books without first having been submitted to the board, but always with the knowledge and sanction of the president.

*7th January, 1829.*

*Mather Carey sworn.*

Q Were you ever a director of this bank; if so, for how long a period?

A I was a director of this bank for 13 or 14 years.

Q Did this bank sustain many losses by failures, while you was a director? If so, were those losses occasioned by accommodation or business paper?

A To the best of my opinion, two-thirds of the losses arose from accommodation paper.

**Q** In your opinion, were the principal losses sustained by the bank, owing to the president not having submitted the notes discounted fully to the consideration of the board of directors?

**A** While I was a director, the president, of his own mere motion, without consulting the board, did discount more than half of the discounts of the board. A large portion of the discounts was done by the president. In consequence of the opposition I made, there was not so much in the latter part of my time as formerly. For most of the efficient purposes of the board the majority of the directors were useless.

**Q** Had Mr. Chauncey an undue influence at the board?

**A** I think so, beyond doubt.

**Q** Had Mr. Chauncey's influence a tendency to reject or discount notes at the board of directors?

**A** I think it had.

**Q** Did you consider that Mr. Chauncey's and the president's combined influence, was calculated generally to reject or carry any measure they wished?

This is involved in the other questions and answers.

*James Schott*, affirmed.

**Q** At what rate was the United States stocks of 5 per cent, and the state stocks of 5 per cent. selling at in Philadelphia, at the time the bank took the late state loan of two millions?

**A** They were from 3 to 5 per cent. above par, at the time the last state loan was taken, it was the nominal market price for a small sum, was the nominal retail price, but don't think that a million or even a half of a million could be put in the market and sold out at that price at that time.

**Q** At what rate was the late loan sold at in Philadelphia, within one week or one month after the bank of Pennsylvania subscribed to the late state loan of two millions?

**A** I do not know at what rate. I purchased myself of one of the loans about 5000 dollars. I gave 4½ per cent. I took it with the interest.

**Q** Was it understood generally in the Philadelphia stock market, that the bank of Pennsylvania had obtained a good bargain in getting the state loan of two millions *at par*; and could more have been had for it, had it been open more publicly than it was to the people. And was it not understood in the city, that the bank would prevent competition by taking the whole loan, in conjunction with brokers and others?

**A** I believe it was considered a pretty good bargain in the city, but at the same time I thought it was as much as it should have brought considering the large amount, and that other loans as was believed would be made by the state. At the time I was spoken to by Mr. Biddle to take part, I agreed to take \$20,000, but after-

wards wrote to Mr. Biddle that if it was above par, he should not consider me as a partner; but afterwards agreed with him to take a share at the rate it was offered. I now hold it.

Q Was any officer or director whatever of the bank of Pennsylvania, directly or indirectly in any way interested in the late state loan of two millions, to your knowledge; if so, who were they?

A Not to my knowledge.

*Samuel Nevins, sworn.*

Q At what rate was the United States stock of 5 per cent. and the state stocks of 5 per cent. selling at in Philadelphia, at the time the bank took the late state loan of two millions?

A The state stock, according to the best of my recollection, was selling from 4 to 5 per cent. above par, not less than 4 per cent. I think the United States stock was from 5 to 6 per cent. by a reference I can furnish precisely. Early in July, 1828, sales of state 5 were made at 103½. United States 5 were from 105 to 106.

Q At what rate was the late loan sold at in Philadelphia, within one week or one month after the bank of Pennsylvania subscribed to the late state loan of two millions?

A Within 60 days there were sales from 4 to 4½, bearing interest from August.

Q Was it understood generally in the Philadelphia stock market, that the bank of Pennsylvania had obtained a good bargain in getting the state loan of two millions *at par*, and could more have been had for it, had it been open more publicly than it was to the people. And was it not understood in the city that the bank would prevent competition by taking the whole loan in conjunction with brokers and others?

A My own opinion is, that if the bank had not taken it, it would not have been taken at that time. I should not have subscribed myself if I could not have come in under the bank. I spoke to several capitalists, and they declined. To the last clause of the question I do not know. I took \$80,000.

Q Was any officer or director whatever of the bank of Pennsylvania, directly or indirectly, in any way interested in the late state loan of two millions; if any person or persons, please state minutely?

A I do not know of any to my knowledge.

Question by bank committee: So far as you know, was not every person who wanted any of the late loan permitted to subscribe for what they wanted? Do you not believe you could have had more if you wished it?

A It is my opinion that if I had asked for more I could have got it. After having agreed to take \$60,000, I applied for \$80,000

more, and obtained it. I cannot answer the first clause of the question.

Question by committee of legislature: Were not subscriptions to the loan, and the expectation that it would be obtained at par, confined to a few brokers and others?

A I did not think it would have been obtained at par. I thought it would have gone above par. I did not know of any arrangement except with myself.

Q Did you pay any thing for the privilege of coming in under the bank? If so, to whom and how much?

A I paid nothing.

Q Was it at the solicitation of the bank committee or any officer of the bank, that you were induced to take a part of the loan—and did you not intend to have offered individually for part of the loan?

A It is my impression I should not have offered under any other circumstances. I believe I made application to Mr. Chauncey, as the agent of the bank: he agreed I should have \$60,000; and it was afterwards increased to \$80,000.

Q Does Mr. Chauncey loan money to brokers and others on interest, to your knowledge?

A I do not know that he does. I have frequently made application to Mr. Chauncey to loan money on stocks, but he has refused—I applied to him as an officer of the bank.

*Peter Wager, a director, sworn.*

Q Were you one of the committee appointed to reduce the expenses of the bank in the year 1827; if so, how were they reduced?

A I offered a resolution to that effect, without any preconcert with any gentleman of the board; and finally it succeeded and carried—I was chairman of that committee. I refer to the minutes for the last clause.

Q In a conversation with the cashier on that subject, was he much excited and dissatisfied, and did he say that he held proxies in his desk, pointing to it to put in or out of bank any person he pleased?

A As far as my memory serves me, I had no conversation with the cashier as regards that resolution till some time after. Preceding the last year's election Mr. Mark Richards called on me to tell me it was under agitation to leave me out of the direction, and they also talked of leaving him out. He believed they had got over me and I was to be sustained. I did not attend the meetings of the bank for three or four weeks, believing I could not sustain myself until the election was over. I was elected and after the election I made up my mind that if I was obnoxious to the institu-



tion I would resign. I then mentioned to Mr. Chauncey that I wished some conversation with him in his room; we conversed and were both excited. Mr. Chauncey stated to me that he and Mr. Norris were my friends, that they had counteracted the efforts of Mr. Sansom, who wished to turn me out, that Mr. Sansom was inimical to me. Mr. Chauncey did tell me that he had proxies enough in his desk to turn out and put in whom he pleased, and pointed to his desk, this was 3 or 4 years before the above conversation—there was no excitement at this time.

Q. Have the stock operations of the bank caused much business paper to be rejected?

A. A great deal of first rate business paper rejected by the bank, if they had not stock they certainly would have the ability to discount more business paper.

Q. Did the cashier tell you that he had made ninety thousand dollars in ninety successive days? how and when?

A. Cashier did tell me he made \$1000 a day for ninety successive days. This conversation was eight or ten years ago; we were talking about wealth and stock; it was made in United States stocks; don't know whether he was cashier or not, but was cashier when he told me.

Question by the bank committee.

Was what the cashier said to you about proxies, said for the purpose of intimidating you in your votes?

A. What the cashier said to me about proxies, I would not suppose was for the purpose of intimidating me in my votes.

*William S. Evans, second teller, called again*

Q. In your examination yesterday, you spoke of the cashier having deposited checks on other banks, in your drawer, and having taken out the money for the same. Were those checks on banks in the city of Philadelphia or on banks in the county; if so, please state on what banks and by whom drawn?

A. They are generally checks on the Pennsylvania bank. I do not recollect that he has ever put checks on other banks and taken the money out. In some instances checks have been drawn by James Paul, on the bank of the Northern Liberties, but in the latter case the money was not taken out, but generally went to the cashier's credit.

Q. Did you or any person to your knowledge, ever communicate to the president, the practices of the cashier in drawing money improperly from the bank?

A. The first teller and myself waited on the president on that subject, it strikes me it was some time in the month of September. I believe we stated to the president that the cashier had been in the habit of putting the checks of James Paul, in our drawer, and had continued until perhaps the next exchange day. On our wishing to know whether he should continue this practice, he (the

president) said he would give an answer the next day. This conversation took place in the president's house. The next day or day after, the president stated in effect, that the cashier had the controul of the funds of the institution, and if he thought proper to continue the practice, he must do it at his own peril. He did not continue the practice. Paul's checks generally amounted to from 8 to 11,000 dollars. I think there was something said about the cashier's bond. The cashier has not deposited any since that period.

Question by bank committee.

Q Do you not take checks from other individuals in deposit, and also give notes from your drawer for checks drawn on other banks occasionally?

A I sometimes put checks in my drawer for other individuals, which I put to their credit, but do not pay the checks. To the clerks of the bank I sometimes cash checks of 5 or 10 dollars, when they keep accounts in other banks, and cannot go for the money. With regard to the exchange of checks, I wish to be understood that I did exchange for Mr. Ridgeway a check of \$80. I am in the habit of taking checks from customers in the after part of the day and placed as deposits only.

*H. J. Lewis, cashier of the Schuylkill bank, sworn.*

Q Have you ever had a draft of an officer of the state on the bank of Pennsylvania protested for non payment; if so, please state for what amount, and the other circumstances attending it?

A The Schuylkill bank draft on the bank of Pennsylvania in favor of John Forster, cashier of the Harrisburg bank, for \$60,000, protested for non payment. It was the check of Alexander Mahon, treasurer of the canal fund.

*Benjamin P. Smith, cashier of the Commercial bank, affirmed.*

Q Is it your opinion that your bank would have taken any of the late state loan of two millions, if she could have obtained it at or above par?

A As far as my information goes, I believe the Commercial bank would have taken part of it at par. It was never laid before the board: it is a mere individual opinion of mine. I had some conversation with several of the gentlemen of the board.

Q Did any cashier tell you that he would have taken \$50,000 of said loan, at 5 per cent. of a premium?

A The cashier of the Farmers' bank of Lancaster, said he would not make an offer for any part of the temporary loan, as he had made an offer for 50,000 dollars of the two million loan at 5 per cent. premium, and did not get it.

Q Was it the general opinion in Philadelphia that the bank of Pennsylvania had obtained a great bargain in getting the loan at par; and did not the fact of brokers being connected with her prevent competition?

A The first time I knew who was concerned in the loan, I saw

it published in the Harrisburg paper. It was understood generally that it was a bargain to get the loan at par—this is my own opinion.

*Thomas Biddle, affirmed.*

**Q** At what rate was the United States stocks of 5 per cent. and the state stocks of 5 per cent. selling at in Philadelphia, at the time the bank took the late state loan of two millions?

**A** The United States stock, redeemable in 1832, sold at from 3 to 4. More might have been asked but could not be had of that redeemable in 1835; 6 was asked but could not be had, unless for small items.

About 30th June, had two transactions of about \$60,000 of state stock with interest from 1st February. Part sold at 5½; part at 5½, this stock redeemable in 1851; was all redeemable in 1846 or 1851.

**Q** At what rate was the late loan sold at in Philadelphia, within one week or one month, after the bank of Pennsylvania subscribed to the late state loan of two millions?

**A** A portion of it sold for 1¼ to 1 per cent. within a week; the highest price I am aware of its being sold, was 4¼: it may have been sold within one month at 4¼, in sums of 40, 50 or 60,000 dollars, in details, to persons who may come and want investments made.

**Q** Was it understood generally in the Philadelphia stock market, that the bank of Pennsylvania had obtained a good bargain in getting the state loan of two millions *at par*, and could more have been had for it had it been open more publicly than it was to the people: and was it not understood in the city that the bank would prevent competition by taking the whole loan in conjunction with brokers and others?

**A** Prior to the loan, several of the gentlemen who were on my list would have limited me to par. As I usually act from a knowledge of the British monied market and its influence on our own, I did not take any names on my list unless they gave me *carte blanche* on the loan. I am always ruled by their opinions, and did not consider that to extend much beyond par. If it had been uncertain that the whole would have been taken, the monied men would have probably held back. I considered, therefore, that an offer for the whole was an inducement for them to offer. I was offered a larger amount than I took, but my funds were inadequate, and I did not conceive it an inducement to make greater exertions. After the loan I considered it a beneficial one, but considered the news from Europe as very proper for its advance.—During the pressure of money \$100,000 of the New York stock was sold at par, which is considered better stock in the European market.

**Q** Of the \$800,000 of the state loan taken by you, how much of it have you sold, and at what price, and when, and what amount have you now on hand, and who was concerned with you?

Refused to answer, as connected with his private business.

**Q** Was any officer or director whatever of the bank of Pennsylvania, directly or indirectly, in any way, interested in the late state loan of two millions to your knowledge; if so, who were they?

**A** I do not recollect of that of my \$800,000, of any being concerned.

**Q** Do you know whether the cashier of the bank of Pennsylvania has been directly or indirectly concerned in the purchase or sale of any of the public stocks or funds, or that he has carried on any other business than that of the bank, either in his own name or in connexion with any other person or persons?

**A** No.

*Joseph P. Norris, president of bank, affirmed.*

**Q** What amount of money has been loaned by you as president, in 1827, '28 and '29?

**A** Sometimes persons may be late bringing in their notes; I may place them on the books, but in very small amounts; don't happen more than once in six weeks; might happen occasionally two or three times in a month, again not once in three or four months.

**Q** Is an account of its employment entered in other than the common discount book?

**A** Always go on the discount book.

**Q** Were any such loans received by the president? If so, to what amount, and when?

**A** None.

**Q** Were notes on pledged stock renewed in preference to others? If so, the reasons?

**A** I don't know that they were.

**Q** In discounts on pledged stock, do you or the bank discount on the nominal value of shares, or upon the sum actually paid in?

**A** We have always taken ample security, and it is when the amount is actually paid in: when the stock is higher than par, we take it at par.

**Q** Were discounts made by you or the board, upon pledged stock of the state loan, before the second instalment was paid? If so, what amount on each share was discounted?

**A** To the best of my recollection, no.

**Q** Were notes of stockholders in the state loan received in payment of any part of the second instalment?

**A** Not that I know of.

**Q** Has any director of the bank, to your knowledge, sold any of the state stock? If so, how much, when, and at what price?

**A** I believe there has one of the gentlemen who subscribed and sold, but don't know how much or at what price.

**Q** To your knowledge, has the cashier directly or indirectly been concerned with brokers or others in the purchase or sale of state or other stock; if so, state with whom and to what amount?

**A** I have no knowledge of such transaction; have no reason to believe it.

**Q** In the loan of two millions to the state, was it publicly known that any individual or corporate body, could be accommodated with a part or parts of the loan, on the same terms on which the bank obtained it? Or did the bank directly or indirectly make known to the public that it would take the whole amount? Did the bank loan to any individual any money; and if so, how much to enable him to meet his instalment to the state loan?

**A** I believe it was publicly known that any individual could be accommodated with any part or parts of the loan. I believe some of the banks were spoken to, and they declined taking any of it. I believe it was known to the public that they could take any part. It was not the wish of the bank to take more than \$300,000.

To the second part of the question, witness says he knows of no loan for that purpose; he believed a loan was made to one gentleman for \$20,000, and to another for \$2000, who had subscribed for the stock, and for the \$20,000, good business paper was offered.

**Q** How soon after the bank made the investment in the aforesaid loan, did it fix its price for purchasers. How much has been sold and at what price. Has the retention by the bank enabled its partners in the loan to dispose of its stock to the disadvantage of the bank?

**A** In reply to the question, I beg leave to hand the following statement:—The first sale was made Oct. 10th.

1828, Oct. 10th,	\$ 1000 at	5	per cent.
Nov. 7th,	\$0,000	3½	do
14th,	20,000	3½	do
25th,	20,000	3½	do
Dec. 1st,	10,100	3½	do
14th,	400	3½	do
16th,	3,000	3½	do
1829, Jan. 7th,	53,000	2½	do

\$ 137,500

To the second part of the question, witness says, he does not know that it has.

**Q** What amount in the aggregate have the state and stockholder directors borrowed from the bank at this time respectively?

**Answer in writing.** The committee of the bank deem this question exceptionable, as interfering with the rights of individuals having accounts in the bank; but feeling desirous in the present instance to afford the committee of the legislature every possible satisfaction, have directed me to give the information required. Accordingly I state the loans now out to state directors are \$32,131, to stockholder directors, \$184,704.

January 8, 1829.

**Q** Does the cashier lay before the board at each discount day the name of every person who shall have overdrawn the bank?

**A** The clerk's do.

**Q** Do the directors of the bank get greater accommodations in proportion to their means than other customers of the bank?

**A** I don't think they do.

**Q** Has the cashier or any teller or clerk of the bank, at any time voted at any election for directors, as the attorney, agent or proxy of any stockholder?

**A** I think it probable the cashier has. I don't think that any clerk has.

**Q** Does the bank of Pennsylvania directly or indirectly, through the agency of any person or person whatever, buy or sell or in any manner trade or deal in their own stock, notes or securities, or in the stock, notes or securities of any bank, or incorporated body whether of the United States, or of this state, or any other state?

**A** No.

**Q** Has the amount due the bank of Pennsylvania by Wharton, in the case of an overdraft, been paid or secured to be paid; if not has any remedy been taken to secure the same?

**A** The debt by Wharton has not been paid, or secured to be paid, nor has any legal remedy been taken to secure the same. I called on him in company with Mr. Nixon, president of the bank of North America, where he has also overdrawn; and he gave most positive assurance the over-drafts should be preferred to any other. He is now too ill to see any one.

8th January, 1829.

*Abraham Shoemaker, affirmed.*

**Q** Have you ever bought any of the late state loan of two millions for yourself, or any one else? If so, at what price and for what amount?

**A** About four months since, I purchased for my mother-in-law Rebecca Huddle, from Mr. Chauncey, cashier of this bank, at 4 per cent. advance, \$24,000 of the state 5 per cent stock; [\$24,000 state 5 per cent. stock of 1825, sold to Rebecca Huddle, at an advance of 4 per cent. taken from the *scratcher*—stock redeemable in 15 years, from January 1825.] I state this as a part of my testimony.

**Q** Was it considered a good investment, and were you not pleased to obtain it, even at the price you gave for it?

**A** I considered it a good investment—as to the price, I think Mr. Biddle and Richard Hull Morris, asked \$105; Mr. Chauncey offered it me for \$104.

**Q** What were the causes which prevented a declaration of dividend on the stock of the bank, for the six months ending July, 1827? If by losses, how and by whom were those losses incurred? And what is the use of the contingent fund, and was it not intended to cover losses?

**A** In my answer to this question, I would respectfully refer to the answer of the bank committee, to question No. 27, and to the

statement marked D, presented with it. I believe, the dividend committee had principally in view the losses which they supposed would ensue on the notes referred to, in that statement, as the prominent cause for not declaring a dividend in July, 1827. For the use of the contingent fund, I refer to the answer of the bank committee, to question No. 1.

*William G. Govett, runner, sworn.*

**Q.** Does the cashier ever retain money, the proceeds of drafts and checks sent to the bank for collection, instead of placing the money to the proper account?

**A.** I recollect two or three instances that money that I collected, had not gone that day to the proper account—amounts of probably \$, 4, or 5000 dollars; they were placed to the credit of Elihu Chauncey; this occurred some time in the early part of the summer of 1828. I have been runner five or six years. This was not allowed to any person but Mr. Chauncey—I never informed the president of it. They were placed to the proper account in two or three days after; at least in three days after.

*George R. Smith, first teller, again called.*

**Q.** Has it heretofore been, and is it yet, the practice of the bank to suffer the vault to remain open from the commencement of the business in the morning during the whole of the business hours? and had and have not persons connected with the bank, access to it without any hindrance or check whatever?

**A.** It is not the practice to lock the vault during bank hours; we some times turn the key, but do not take the key out. At three o'clock, when banking hours close, I always lock the vault and take the keys home with me. There are two doors to the vault, but the keys of the respective doors are not in different hands during the day, but remain in the locks.

Persons connected with the bank, and whose business is not connected with the vault, may have access to the vault, because the doors are not locked, and the keys remain in the doors.

**Question by the bank committee.**

Have you ever seen or known any person to go in the vault who had no business in it?

**A.** I never saw or knew any person go in the vault who had no business in.

*Jacob Ridgway, of stock committee, affirmed.*

**Q.** To your knowledge was it the wish, object or design, of the committee on loans, of the bank or of any individual of it, that certain favorites only should come in under the bank, for a share of the loan, if not, was it their wish and did they use their endeavours to give all a chance who might wish to participate?

**A.** I have no knowledge that it was either the wish or design of the stock committee, that certain favorite individuals should come in for a share of the loan to the exclusion of others, but that as

many should be participators in that loan as wished to. At different meetings which the committee had, and particularly the last, it appeared to be the general wish, and it was my own, with, I believe, one exception, that the bank should not take more than \$300,000, and if possible, the remainder should be distributed amongst those who wished to participate. If I recollect right, the cashier was desired to speak to such individuals as he thought most likely to subscribe to the stock, to induce them to take such portions as they would be willing to do. I believe he performed that duty, but after having obtained all the wishes of those who were willing to subscribe, there was a larger balance found to remain than the bank wished to subscribe for on their own account; but it was at length concluded that the bank would take 500,000 or a few thousand over if the cashier could not diminish that sum. With these instructions Mr. Chauncey went to Harrisburg to subscribe for the whole loan of \$2,000,000 at par, with however a small latitude with regard to the offer, to offer a fraction more if he found it expedient to do so—the fraction was not fixed. I am positive it was not to exceed one per cent. but the impression on my mind it was less than one. In making this offer it was understood by the committee that the bank was to take for its own account about \$500,000, and that the remainder was to be subscribed for by the bank for account of the persons a list of whose names we then had before us, and which is now on the books of the bank, and who were to have it at the same rate at which we might contract for.

**Q** To your knowledge were there means used by any one to induce the public to believe that the bank would take the whole stock for itself?

**A** I know of no means used to induce the public to believe that the bank would take the whole stock for itself, to the exclusion of others.

**Q** Was it the policy of the bank, of the committee, or of any individual of it to prevent competition by monopolizing the whole for certain favourites of the bank?

**A** I know of no such means, nor do I believe it was the policy of the bank. My impression is, it was the opinion of a majority of the board and decidedly my own opinion, that inasmuch as the bank held at that time between 17 and \$1800,000 of the state 5 per cent. stock, which she had been unable to dispose of, that it was of the utmost importance to this institution that the loan of \$2,000,000 which the state was offering should be taken, but there appeared no wish by a majority of the board to offer for this stock from motives of interest, but from expediency first, to prevent the stock which the bank then held from falling, by which the bank would be considerable losers, and secondly: with a view of encouraging others to come forward and participate in the loan.

From inquiry which was made by the bank, of the monied institutions, the banks of the city and individuals, and such inquiry as



I made myself. It appeared that there would be but small amounts offered for this loan; and as the committee believed that unless the institution came forward and offered for the loan it might fail. Under all those views the committee determined on the part of the bank that if individuals and monied institutions would unite with us in offering for the loan, that this bank should do so, which was accordingly done.

Q Do you believe that the interest of the bank was promoted by taking the loan?

A I do not believe the interest of the bank was promoted by taking the loan. The views of the committee were to promote the interest of the bank; the result was, if not a disadvantage, it was not of considerable advantage.

Q What price did the stock committee fix upon the loan after the bank had taken it?

There was a stock committee appointed previous to that, but they were not authorised to sell the loan of 1828, till the 30th August, 1828. The board extended the powers of the old committee to the stock of 1828. The committee fixed the price at 5 per ct. premium of the stock of 1828 for small sums; if large sums were offered for, the stock committee was to be informed, and it was the impression that less would be taken: it depended on the amount offered. I believe none of that stock was sold for a considerable time after.

Q Had not the "understanding with another institution and with individuals," stated by the committee on part of the bank, the effect of lessening competition in bidding for the loan, and thereby to diminish the price which the state would obtain for it?

A My opinion is, it is exactly the reverse; that if the bank had not come forward, many individuals who subscribed under the bank, would not have taken any portion of the stock, and so far from preventing competition it had the effect of inviting individuals and others to participate, knowing that the whole would be taken, and that none would be left unsubscribed for, which would prevent any remains of the stock coming into the market at a lower price.

Q Was there any written correspondence with the other institutions mentioned by the committee on the part of the bank? If so, please give a copy.

A There was no correspondence to my knowledge by the committee, with any institution.

Q Were the instructions to the cashier relative to the loan of two millions in writing or were they verbal? If in writing please furnish a copy.

A The instructions to the cashier in the two million loan were verbal, but were taken down by him; after having made them he read them over.

Q Was it not understood generally in the Philadelphia stock market, that the bank of Pennsylvania had obtained a good bargain in getting the state loan of two millions *at par*?

A When the stock was first taken by the bank and others who participated, it was thought they had got a bargain, and they believed they had got one, consequently their ideas were buoyed up. Not only this institution but others asked high prices—after waiting for the effervescence of public opinion to subside and but few purchasers coming forward to buy at the prices they were then asking, we and others perceived that our bargain was not so good as we supposed, and was necessary to reduce our prices or continue to be the holders of the stock. The prices of stock were then reduced from time to time, in order to induce purchasers to come forward; and at this time I do not believe more than par can be obtained for the stock of 1828, the seller retaining the interest till the first of February next. I have no knowledge of other stock selling at that time above par, but my impression is it was.

Q Is it known to the president, directors or any officer of the bank, that the cashier either directly or indirectly deals through the agency of any broker, or other person or persons, in any of the public funds or stocks?

A I have no knowledge of any circumstance of that kind, nor have I any reason to believe that he does do so.

Q Does the committee on stocks and loans keep a minute of their proceedings, and will you lay the same before the committee of the legislature?

A The committee on stocks keep no regular minute of their proceedings.

*Robert A. Putfield, cashier bank Northern Liberties, sworn.*

Q Are you cashier of the bank of Northern Liberties, in the county of Philadelphia?

A I am cashier of the bank of Northern Liberties.

Q Did you ever see the checks of Elihu Chauncey in your bank, given as you supposed in exchange for those of James Paul; if so, what course did they take?

A I have frequently seen checks of that description. James Paul frequently deposited E. Chauncey's checks, with an understanding that he should not draw on them. I am not aware that he ever did draw on checks of E. Chauncey so deposited. The usual amount was \$10,000 on average, have known it more and less, sometimes \$15,000 sometimes \$8,000. James Paul is one of the directors of the Northern Liberty bank. Mr. White had also deposited Mr. Chauncey's checks. \$10,000 is a common sum. Funds drawn on them would operate against the institution.

Q Did you ever as cashier refuse Elihu Chauncey any favors of a money kind as an individual; if so, please state what they were?

Witness declines answering, being of a private nature; he never asked as cashier of the bank.

Q Did you understand what favors of a money kind were granted to Mr. Chauncey, during the life time of Mr. Whitehead, president of your bank?

Declines to answer, being of a private nature.

**Q** Is Mr. Paul a director of your bank, and what is his occupation or business, or does he do any business, to your knowledge or belief?

**A** James Paul is a director. He is out of business. Attends merely to the collection of his income. Mr. Chauncey never offered a check on deposit—he has no account, nor has he ever had an account there to my knowledge.

*9th January, 1829.*

*Edward Biddle, sworn.*

**Q** Are you one of the house of Messrs. Biddles, stock and exchange brokers of this city? Do you write in the office of Messrs. Biddles?

**A** I am not a stock or exchange broker. I am clerk to the firm of the Biddles.

**Q** Has your house ever bought of, or sold to Mr. Elihu Chauncey, any stock, or notes of hand, or bills of exchange foreign or inland, of any kind whatever?

**A** They have had occasionally stock transactions with Mr. Chauncey. I do not recollect at the present moment any notes or bills of exchange. They have had orders to buy stock, and sometimes to sell. He sometimes bought stock for Pennsylvania bank. He sometimes bought and sold stocks in his individual capacity. We took stock in the last loan for various persons; don't think it proper to divulge the names of individuals for whom we took the stock.

**Q** Was Mr. Chauncey ever in his own name, or in the name of any other, a partner in your house, in the purchase of any state or United States loan?

**A** I don't recollect of Mr. Chauncey being concerned with us in any thing of the kind, either in state or United States stock. I have been clerk in that house since 1819 or 1820.

**Q** Did he ever act as agent to a large amount, in transactions with your house, and do the Biddles ever exchange checks with him, or get his checks for value received to a large amount, and deposit the same in bank without first drawing the bank notes for the same?

**A** Mr. Chauncey did not transact business as agent in our house. We do not exchange checks with him. I do not know of any. We keep our general accounts in the Pennsylvania bank and the bank of the United States. We deposit our checks either in one or the other as it may happen, on which they are drawn.

*Joseph Swift sworn.*

**Q** Are you a book-keeper in the office of the Messrs. Biddles?

**A** I am book-keeper in the office of Messrs. Biddles.

**Q** Did you ever deposit the check of Mr. Chauncey, on the bank of Pennsylvania, for any amount, great or small, in the bank United States, or any other bank, to the credit of the Messrs. Biddles, when it was known that said check would not be passed to the debit of Mr. Chauncey until the next day afterwards? If so, please state minutely.

We have deposited checks of Mr. Chauncey, and many others, frequently, in this way. Mr. Chauncey's checks are sometimes small, sometimes large, but not often very large, from 2 to 12,000 dollars.

Q Do you know of the Messrs. Biddles ever having had any stock or exchange operations in concern with Mr. Elihu Chauncey, or any officer of the bank of Pennsylvania, or any other person for him?

A No, I do not know of the Messrs. Biddles having any stock or exchange operations with Mr. Chauncey, or any other officer of the Pennsylvania bank, or any other person for him.

*William Clark, discount clerk, again.*

Q Did the cashier of this bank, at any time, desire you or any other person, to your knowledge, to make any incorrect statement of the income of the bank? If so, relate all the particulars minutely.

A I do not very distinctly recollect the transaction. Do not know that the cashier ever gave me orders to do so. I have some knowledge that the statement of the income of the bank was altered, but whether I derived that knowledge from my own observation, or whether it was told to me, I do not recollect. This happened some years ago. I understood it was done by the orders of the cashier. I understood the motive or object to be, to leave a provision for a stock note, of a considerable amount, which fell due one or two days after the regular discount day. I have, on such occasions, myself informed the cashier or president that such notes were about to become due, in order that some provision might be left for the renewal of such notes, if such renewal should be asked. Perhaps I might have done so in this case, but I do not particularly recollect that. On the next day after the alteration was made, it came to the knowledge of the president; in what way I cannot now distinctly recollect, but I am inclined to believe that I mentioned it to him; of that, however, I will not be positive. The president ordered the income to be correctly represented; and I understood at the time, that the cashier and he had consulted about it. The income was therefore correctly stated to the board; and neither on that occasion nor any other, within my knowledge, was the board ever deceived with regard to the income. I do not recollect whose note it was. Do not distinctly recollect the amount. May have been 8 or 10,000 dollars. The transaction was mentioned to me by Samuel Coats.

Question by the bank committee: Did you make the alteration? If not, who did? If you made it, by whose orders?

A I did not make the alteration. My impression at the time was, Mr. M'Goffin made it, and that he made it by the order of the cashier.

Q Did the cashier ever order you to make the alteration?

A I do not recollect that the cashier ever ordered me to make the alteration.

Q Was the incorrect statement ever presented to the board? Was it not corrected before it was sent in?

A No incorrect statement within my knowledge was ever presented to the board; it was corrected before it went in.

Question by committee as to alteration: Did the cashier ever order or direct you to make any alteration in any statement to be made to the board, of the state of the bank; and have the books of the bank ever to your knowledge been ordered to correspond with such altered statement?

A Never to my knowledge. Every thing is strictly and fairly done in my department. I know of no such transaction as is alluded to there.

Question by bank committee: Can you fix the time when this transaction took place.

A I cannot fix the time—it may be 3, 4, 5 or 6 years ago.

Q Was the note a *stock* note, under the jurisdiction of the stock committee, or were there any particular circumstances in relation to it, which took it out of the general rule?

A I cannot recollect any thing farther than I believe it to have been a stock note, but under what particular circumstances, or if under any particular circumstances, I cannot recollect. This was the above note spoken of.

*Joseph M Goffin, again examined.*

Q Did the cashier ever order or direct you to make any alteration in any statement to be made to the board, of the state of the bank?

A I did alter the statement of the income of the bank; I think it was in the year 1825. The cashier never directly ordered me to make the alteration. I was told by Mr. Clark, discount clerk, that the cashier informed him the note was to be taken off. I took it off.

Q Was the incorrect statement ever presented to the board, or was it corrected before it went in?

A The incorrect statement was never presented to the board. I corrected it by order of Mr. Norris, the president. I do not know the object of making the alteration.

Q Have the books of the bank ever to your knowledge been altered to correspond with such altered statement?

A I know of no such transaction of any alteration in the statement and the books made to correspond.

Statement 25th May, 1825. Total income of that day, \$107,050 93.

The note I think was payable at New York, for \$33,000.

Question by the bank committee.

Q Did the cashier ever order you to make the alteration?

A I observed Mr. Clark, the discount clerk, coming across to the bank one afternoon with a list of discount notes in his hand, and on coming up to me, he put his thumb on that note, a conspicuous note, and said "that note is to come off, Mr. M'Goffin, the cashier says so." He turned round to his desk and said "if the president objects in the morning, I will come over and explain it to him." He meant that he would explain it to Mr. Norris.

Question by the bank committee.

Q Did you ever have any conversation with the cashier or president respecting it?

A I never had any conversation with the cashier or president respecting that business—(the above.)

*James Paul, affirmed.*

Q Has Mr. Chauncey been concerned directly or indirectly in any way in the purchase and sale of stocks or the discounting of notes, to your knowledge?

A I never had any knowledge of any transactions in the purchase or sale of stock by the cashier.

Q Is Mr. Chauncey in the habit, or does he sometimes get your checks in exchange for his to a large amount; or what consideration do you get for such checks?

A I very frequently lend Mr. Chauncey money—give him my checks. I never got a cent for it; I lend it to oblige him.

Q Were you a partner in the late state loan of two millions; if so, please state how you become so?

A Mr. Chauncey asked me about the loan. I told him I would take a slice or part, if it went at par.

Q Would you have been willing to have taken any part of the late loans to the state above par? And at what price have you sold any of the loan you took of the state at par?

A I told Mr. Chauncey to take it at par. With regard to the sales of the stock, I think that my own business. I decline answering.

*William S. Evans, 2d teller again.*

Q Has the cashier ever passed the checks of brokers to his own credit; if so, for what sums, and when were they paid?

A I think the cashier did pass the check of a broker to his credit, (the cashier's) for 14 or 15,000 dollars, which check was not paid that day.

*John T. Sullivan, again examined.*

Q Was the committee appointed to loan money on stock, authorised to discount notes on personal security; and has that committee been discontinued by the board, and when? Since that period, has there been any authority given by the board to any director, or other person or persons, to make discounts on stocks or personal security, in the absence of the board of directors?

A I understood the committee authorised to loan money on pledges of stock, was authorised to discount loans without the authority of the board on pledges of stock; they were not authorised to discount on personal security. That committee has been discontinued I think last fall a year but cannot state the time exactly. At the time this took place, there was a pressure on this bank, or a scarcity of money, owing to extensive accommodations to brokers, on pledges of stock. In consequence of those circumstances, I made a motion that the functions of that committee should cease; it was not a regular motion, but on suggestion to the board it was unanimously concurred in, that the committee should be abolished. Since that period no authority was given to any person, either director, committee or officer, to make loans, for any consideration, without the sanction of the board.

Q Have there been any discounts since that time to brokers and others, without the authority of the board? If so, to whom, and for what amount, so far as you recollect? Were discounts made by the president at a period when good paper was rejected by the board for want of means?

A There have been several loans to brokers and others since that period, for large amounts, without the authority of the board, or without their knowledge.

I first became acquainted with this departure from the rules of the board, having stopped in the bank in the afternoon, previous to discounting, looking in the discount books, with a view of ascertaining the character and view of the offer for the next day; I then discovered that a discount was made that had not been submitted to the board. I then stated to the discount clerk, "this note was not before the board—how came it here?" He stated that the president directed the note to be entered on the books, after the board had broken up. The discount was for one of the notes for \$13,900, made to a Mr. Ralston, a brother of one of the directors. The circumstance excited the more astonishment inasmuch as the drawer of the note had recently arrived in the country; and I believe while I had been in the bank, his name had never been presented to the board of directors. The indorser may have been good, but have seen paper for a less amount, from the same person, (the above indorser) refused for want of confidence in the drawer and indorser. It is my opinion that the above note of \$13,900, would not have been discounted by the board if presented. The books are brought before the board; but unless your attention is particularly drawn to them, they are never examined; and I was in the bank a long time before I knew the practice to prevail.

Discounts were made by the president at a period when good paper was rejected by the board for want of means, very frequently. I think on the 5th January, 1828, there was \$20,000 discounted by the president—30th January, \$20,000—2d February, \$40,000, and same day, \$40,000—12th April there is a note entered for

\$20,000, which was not put on the books on the discount day, but I think was put on a day or two before. I would not be so positive that the last sum was discounted exclusively by the president, but that is my opinion. On 18th June, \$20,000. 18th June James Whitehill's note done for the Biddles for \$10,600—on the 5th July there was a stock operation of \$2,500; another on the 5th July for \$9,500; neither of which, in my apprehension, were ever submitted to the board.

It is probable there may be a mistake in some of those notes, but so far as my memory serves me, and I have been very attentive, the facts are correctly stated.

Q State if you can the amount of discounts by consent of the board to the Biddles during the year 1828?

A By the memorandum I have here taken from the books, the amount of discount to the Biddles, by consent of the board, is \$189,000.

Question by bank committee. Please designate the time you made the suggestion for the dissolution of the committee on loans?

A I refer to my answer to the first question as to the time.

*Mr. Norris, president, again.*

Q Do you know who authorised an incorrect statement to be made in 1825, and what do you know of that transaction?

A I know nothing of any erroneous statement ever made to the board; if so, it has entirely gone from my memory.

*Samuel Coats, jr. first note clerk, called and affirmed, by the bank.*

Q Do you know of any incorrect statement made in 1825, and did the cashier tell you that he directed the alteration to be made?

A I do not know of my own knowledge any thing about an incorrect statement of the bank in 1825. I never did alter any statement of the income of the bank.

The cashier did not tell me that he directed the alteration to be made.

Question to the president. What amount of accommodation, and what amount of *business* paper has the bank at this time discounted?

Answer in writing:

The amount of accommodation paper discounted by this bank December 30, 1828, was	\$301,244 00
The amount of business paper was	918,024 42
Bonds and mortgages, &c.	58,867 62

The amount of protested bills was

1,278,136 04
333,647 96

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\$1,611,783 80

Question to the president. Was the \$253,000, or the \$200,000 or any part of it (loaned in pursuance of a resolution of the board adopted 29th January, 1825) loaned to brokers?



A In the course of February and March, 1825, this sum was loaned to brokers by the committee.

Mr. Cave explains: That in my last testimony I stated that the discounts for the brokers who had taken the last loan was by the board, but now I am not prepared to say whether they were discounted by the board or not—I do not know how it was.

January 10, 1829.

*George R. Smith, first teller, again.*

Q. Did Jonah Thompson, a stockholder director, over-draw the bank? if so, what amount did you pay, and who paid the remainder? Is it usual for you to absent yourself during business hours? How did it happen that you left the bank and remained absent from your post on that day? Please state by what authority, and all the circumstances connected with this transaction.

A Jonah and George Thompson did overdraw the bank, to the amount of \$6,000. Part of that day I was absent. Dont recollect how much was paid. It is not usual for the first teller to be absent. The reason why I was absent, was, that I was at our quarterly meeting of friends. I dont recollect to whom the over-draft was paid. It was not applied to the use of any officer of the bank.

Q What has been the practice of the cashier taking money improperly from the bank?

A I dont know of the fact of the cashier taking money improperly from the bank.

Q Were there any recent over-drafts? If so, by whom, and for what amount?

A There were some recent over-drafts—there was one of Andrew M. Pouveau, a few weeks ago, for something over \$3,000. There was a more recent one, that of John Wharton, for something over \$6,000. There have been overdrafts, generally of a small amount, but paid again.

Q By bank committee.—Were or were not the overdrafts of J. and G. Thompson repaid to the bank?

A The overdrafts of J. and G. Thompson were repaid to the bank.

Q By committee of legislature.—What circumstance gave rise to your calling with Mr. Evans, or the president, about the cashier?

A I called on the president in consequence of some checks of Elihu Chauncey coming in exchange from the bank of Northern Liberties in the morning, some of which were not provided for at the time they came. The checks were from 5, 6, 7, 8, to \$11,000; generally about 8 and 9,000 dollars. There would appear some times two or three in successive exchanges; they would continue sometimes for three weeks, and then cease for months.

Mr. Evans and myself called on the president for the purpose of stating the circumstance of these checks, and to receive instructions from him how we should proceed. The president said he would give us an answer the next day. Two days after the presi-

dent told me that the securities of the cashier were responsible for any thing of that kind, and we were not; that as cashier he had control of the cash. This practice has been discontinued since that time. This was about the middle of September, 1828. We had some doubt about the correctness of the proceedings, whether we ought to pay such checks. We called on the president in the afternoon after the bank had closed.

*William Brown, director, sworn.*

**Q** Was not the bank in a very serious and critical situation about the first Monday of November, about the time the cashier went to Harrisburg?

**A** I neither think the bank was in a serious or critical situation about the first Monday of November, 1828, about the time the cashier went to Harrisburg. I have been a director for eleven years, and never knew the bank in such a situation. I came in in 1827.

**Q** Did you not pledge some of your own, or some of the securities of the bank, in order to sustain the credit of the bank?

**A** I did not pledge my own or any of the securities of the bank, in order to sustain the credit of the bank.

**Q** Was the bank by your knowledge ever compelled to go into the market to sell her stock, to sustain herself? if so, please state all you know on the subject.

**A** The bank I dont think was *compelled* to go into the market to sell her stock in order to sustain herself. Some time, I think between the 25th Oct. and 1st Nov. 1828, there was a considerable press for money; the offering was much larger than the income. A majority of the board as I believe thought it prudent that we should keep within our income: we did so. After the board broke up, Mr. Okie asked me as one of the stock committee, what the prospects were for the sale of stock. I told him they were not encouraging; he then asked me if money could not be obtained on this stock, in case of need. I told him I did not know, but as it was known generally, that I had a large amount of stock myself, I could make the inquiry without any one knowing that it was for any person but myself. Betwixt that and the discount next day, there was considerable drafts from other banks of specie; from one bank I think to the amount of \$100,000, and from other banks considerable. I think the president mentioned, that with the exception of the Spanish dollars, the greatest quantity of the other coin had been drawn out. The idea Mr. Okie threw out, then suggested itself to me, and I made inquiry how the monied individuals, if they would advance me 50 to 100,000 dollars, predicated on a sale of state 5 per cent. stock, not to be forced on the market, but sold as the market would bear.

In the course of a day I received for answer to the amount of \$50,000 could be done, and perhaps a larger sum. I stated I would give an answer the next day.

When the board met, the specie in the bank was, I think, a little under \$100,000, and the balance from the other banks were against this one. The board seemed anxious to discount the paper that was offered. After the discounting was over, some proposed one thing and some another; one proposition was from Mr. Sullivan, to advertise 500,000 dollars of the state 5 per cent. stock that the bank held, and sell it at public auction. I did not like that mode. I thought it would be unprofitable to the bank, and injurious to the state; and stated to the board the substance of what I have already stated here, and wished Mr. Sullivan to withdraw his proposition. To the best of my recollection, it was not withdrawn, but ordered to lie on the table. The board then agreed that the stock committee should be authorised to take money, not exceeding 200,000 dollars, predicated on the sale of stock; I think that was the amount, but will not be positive; in consequence of which I took 50,000 dollars, the committee on stocks authorising me so to do; and a day or two after I took \$30,000 more. The whole sum amounting to 80,000 dollars. I took it on the authority of the committee, to be paid for by a sale of stock, and by the interest that accrue on it, and the usual brokerage of  $\frac{1}{4}$  per cent. on the sale of it. The stock was sold at different periods, perhaps in 3 weeks. The price received, I think, for the late loan of two millions, was  $3\frac{1}{2}$  per cent. and 3 per cent. of what was sold of the loans, that had not so long to run. As I received the money, I handed it to the president; and the stock was sold in my name, and by my orders. I handed the bills of the stock to the president, and the account when it was closed, and there ended the transaction.

The price that was obtained for it is higher, I believe, than any that has been sold since.

**Q** Was any money borrowed at interest last year, from an individual or individuals, by any person, and by whom, for the use of the bank of Pennsylvania; how much, and at what rate of interest? Has the bank agreed to pay an interest to the Harrisburg bank, on what amount, and at what rate of interest? And does she pay interest to Messrs. Barings, of London?

**A** I know of no other than that I have now stated, except the Harrisburg bank. The balance due the Harrisburg bank, I think is 150,000 dollars, at the rate of 5 per cent. interest; and that was done I think, to accommodate the state.

**Q** How much of the United States loan, was paid off in July, 1823?

**A** I don't remember.

**Q** Did the committee authorised to discount on stock deposits at all times examine the security offered, previously to the discount having been made?

**Q** I think whenever the president had an opportunity he consulted the committee, and they did examine the security on stock deposits.

*Monday, 12th January, 1829.*

A communication from the committee of the bank to the committee of the legislature, also a communication from the committee of the legislature to the committee of the bank.

[Pro ut communications, in appendix.]

*Abraham Okie, again called.*

**Q.** Was the bank in a very serious and critical situation about the first Monday of November, about the time the cashier went to Harrisburg?

**A.** I considered the bank in a serious and critical situation about the 25th October, 1828, in consequence of its being debtor bank for a considerable sum, and in consequence of the cashier having drawn the attention of the board particularly to the state of the bank at that time. When I state that the bank was in a critical situation at that time, I don't wish to convey the idea that the bank was insolvent, or any thing like it, but that the bank was in that situation as to induce her to act on the defensive. In the trip to Harrisburg, by the cashier, as I understood it was to parry an impending blow. As by the statement of the 25th Oct. 1828, it appears we owed the Harrisburg bank \$151,482 37. There had some little jealousy supposed on the part of the Harrisburg bank, in consequence of the establishment of the branch, and was supposed that the Harrisburg bank would draw on us for the amount due. There appeared a good deal of uneasiness on account of the statement, as that item appeared greater than the amount of specie on hand, which was \$134,154 15, as reported on the 25th Oct. and had dwindled down to \$79,773, on the 28th Oct. The following resolution by the board to negotiate with the Harrisburg bank for the debt due, (pro ut resolution) dated 25th Oct. 1828, cashier made the following report, (pro ut report) dated 1st Nov. 1828; resolution of the board dated 29th October, 1828: That the committee on stock take temporary loans, not exceeding \$200,000, and pledge stock, (pro ut resolution.) It was stated by a very respectable gentleman on Saturday last, that these things were gone into for the benefit of the state; but I must acknowledge that I had not the state in view at that particular time; my object was to protect the bank.

**Q.** Do you think that the bank was placed in this critical situation in consequence of its large speculations in the state loans, and in consequence of its difficulty in making sales, if the latter, was the cause to be attributed to the partners in the loan disposing of the stock?

**A.** I have no doubt but the bank was placed in that situation in consequence of the state loan. The bank went forward and took \$2,000,000 of state loan; out of that two millions, \$514,200 only fell to the lot of the bank. Of this the instalments were paid up, in anticipation, to the state. After these instalments had been paid up, as I conceive, the state had no claim whatever on the bank. The officers of government could not know, officially, any other than the bank of Pennsylvania, in the taking of the loan,

as I presume. But we find an individual firm in the city who took \$800,000 of that loan. It appears to me evident then that every instalment beyond what the bank had actually paid upon her own stock, that she paid to the government, in advance. She was standing in the gap for all the individual holders, and the state not knowing any of these individuals, could not apply to them, although they are heavier holders than the bank. Hence I draw the conclusion of the folly of the bank in having any thing to do with any individual holders, or any person whatever, in conjunction with her.

**Q** Was you privy to the report made to the board by the cashier some months ago, of the loss of \$2000, which he stated to have been stolen from the bank?

Was a committee appointed on that occasion, and was you one of that committee?

After an investigation to what conclusion did you come?

**A** I was in the board when the cashier stated that \$2,000 had been stolen from the bank. A committee of three was appointed to investigate the affair—I was one of the committee. Two of the gentlemen came to one conclusion and I to another. My conclusion was that the loss was in consequence of neglect of the cashier, and should be charged to him. The result was that it was charged to profit and loss. There were two reports introduced into the bank on that occasion. The first report was signed by two—I did not sign the report. After the board broke up, and after some conversation between the cashier and Mr. Ridgway, the first report was withdrawn and another substituted, (minutes 20th September, 1828—motion to postpone report for the purpose of introducing a substitute—motion was lost, yeas 4, nays 10—report adopted) pro ut minutes. The substitute I offered is not on the minutes, nor have I a copy of it

*January 12, 1829.*

*Resolved,* By the joint committee of the legislature that the officers or directors of the bank of Pennsylvania, be allowed the privilege of offering any testimony they may think necessary to show that the affairs of said bank have been properly conducted.

*January 13, 1829.*

*Examination of witnesses by the bank.*

*Question by bank to William Brown.*

Messrs. Okie and Sullivan have stated, that it is usual for committees to contract for loans, or make purchases or sales, without the consent of the board; be pleased to state what the practice is in this bank, and whether you have known a single instance when a committee without full powers from the board, did ever so contract, or make purchases or sales?

I have not known a single instance where a committee have contracted for loans, or made purchases or sales of stock, without having full power from the board so to do.

**Q** Mr. Sullivan has stated (in answer to question No. 3) that the late loan of two millions was taken by the cashier without the order of the board; be pleased to state what you know relating to this fact?

**A** I know that the cashier taking that loan of two millions, acted in conformity with instructions received from the committee appointed by the board on the 21st June last, with full power so to do.

**Q** Mr. Sullivan has stated that the cashier participates in the counsels of the board, and that his influence with the board is very considerable; be pleased to say whether you have known the cashier to interfere improperly with the business of the board, or whether he has ever attempted to exercise any personal influence over any director?

**A** I have never known the cashier to interfere improperly in the councils of the board, or to use personal influence with any director, nor do I think that any gentleman in the board would suffer the cashier or any other person to use personal influence. In my opinion the cashier's conduct at the board has always been decorous and gentlemanly.

**Q** In answer to question No. 16, Mr. Sullivan has stated, that the board has lost its most valuable business customers, by its stock operations. Do you accord in this opinion; and do you know of any one valuable business customer, the bank has lost by its stock operations, or its want of funds?

**A** I do not accord with Mr. Sullivan in his opinion, nor do I know any valuable customers, or any other customer, the bank has lost by its stock operations, or by want of funds. I think the discount received for the last six months, is greater than that of the 6 months preceding, which the dividend statements will show.

**Q** Were you a member of the last committee to lend money on pledges of stock; if so, state when you were appointed, how you exercised your powers, and when and how were you discharged?

**A** In answering this I will refer to the minutes, 9th Oct. 1824, Resolution that the president be authorised to discount notes, &c. Pro ut resolution.

10th Nov. 1824, board appoint Messrs. Brown, Sansom and Neff, a committee, &c. Pro ut resolution.

13th Nov. 1824, committee report verbally that it would be safe to lend money on United States bank stock, &c.

11th Dec. 1824, committee appointed on 10th ult. report.

29th Jan. 1825, resolution that the president, with Messrs. Ridgway and Brown, a committee to discount to an amount not exceeding \$200,000, in the aggregate at the rate of 5 per cent. not less than 60 days, nor more than 6 months, to run on pledges of stock. Prout resolution.

When the resolution of 29th Jan, 1825, was adopted, the bank, I think, had considerable funds unemployed; and it was a serious consideration with the directors how to employ these funds to the advantage of the bank. The resolution alluded to, was adopted

with an understanding amongst the directors, that they and the officers of the institution, should make it as publicly known as possible among their friends, and that they would do their endeavors to bring such customers to the bank. In consequence of this resolution, sums were loaned from time to time, on security of stock; whether there was any deviation in the security taken, (when I say deviation, I mean other stocks than mentioned in the resolution,) was always submitted to the board before taken. The balances by other banks, still continued in favor of this bank. The committee continued discounting whenever they had an opportunity, notes in this way, always considering the favor done to the bank, and not to the borrowers. This went on up to August, 1827, when the funds of the bank unemployed became so large that it became a matter of very serious consideration with the board of directors, how they should be employed; and on the 21st July, 1827, the balance due the bank was \$765,138. On the 25th July, still increased—was \$862,000. On the 8th August, balance due this bank was \$882,000. It owed \$60,000. I find on the 8th August, 1827, a resolution placed on the minutes, appointing a committee to do discounts of real business paper on terms less than the rate usually charged to an amount not exceeding \$200,000 pro ut resolution.) This resolution occasioned a good deal of agitation in the board. Some gentlemen stated pretty warmly, "would you go to discount business paper or any paper before my face, at a rate less than I pay you on my accommodation paper, which I consider as good as the bank, or I would not offer it," and I fully concurred in the opinion of the gentleman what he stated about his paper. The resolution was not adopted. After a good deal of discussion the board broke up with this understanding, that the committee loaning money on stock should use every exertion to loan money in that way, and that the president, if good business paper was brought on other days than discount days, should, if he met with any of the directors, discount such paper and have it put on the books. This practice continued, the committee using every exertion to get paper from any one that offered it on pledges of stock until money came in demand, when the committee ceased to do any thing farther except fulfilling the engagements they had came under. The committee conceived they were acting under the resolution of 29th January, 1825. When money came in demand, some of the parties that had taken money on deposit of stock applied to the president, I think several days before their notes became due, to know if a part of the amount would not be renewed for a short time; the board did not at that time come on any determination on that subject—thought it was time enough when the notes became due.

I will observe that in every instance when this money was loaned on stock of 5 per cent. I considered it a favour done to the bank, and that every dollar received of discount in that way was so much gained by the bank, that they would not have gained it if that plan had not been adopted. In no instance that I know of,

in making such loans has the bank, lost a single dollar. When those notes were discounted they were entered on the books of the bank, which books were placed before the directors at the next discount day.

I have no knowledge of any resolution being offered to this day discharging that committee. It is not considered in this bank that a new election dissolves a committee appointed under a resolution by a former board.

Question by committee of the legislature.

Did Mr. Chauncey ever say in your presence, that he had to let the Messrs. Biddles in the loan of 1827, lest they might be competitors with the bank?

I never heard Mr. Chauncey say that he was obliged to let the Messrs. Biddles participate in the loan of 1827, in order to prevent them from being competitors. Mr. Chauncey had no power to let them in—he was acting under the direction of the committee.

Question by committee of legislature.

What were the instructions given by the committee to Mr. Chauncey, when he was authorised to take the loan of two millions? Were they in writing?

The instructions given to Mr. Chauncey, in the loan of two millions, were in writing—a copy of which the committee of the legislature now has.

*William Sansom*, a director of the bank, affirmed.

Q Were you present at the meeting of the board of directors, on the 16th of April last, when a *certain auction house*, offered for discount three notes, for \$548 70, for \$2410 45, and for \$1578 71? if so, state what occurred on that occasion?

I was present. Mr. Sullivan urged that these notes or some of them should be discounted; to this it was objected, that the offerers were discounters at the bank, for \$38124: that they kept a poor account; and that the commonwealth would soon require a temporary loan, and that the bank ought to be in a situation to furnish at least a part of it to the commonwealth; Mr. Sullivan replied, that he should be opposed to aiding the commonwealth any further: that the bank, had already gone far enough, or too far, in making loans to the commonwealth, and that he understood that the bank was established to aid the people and the merchants, and not the commonwealth. The president observed, that he would not have read the preamble to the charter, (reciting the preamble,) Mr. Sullivan added it would be a poor business, to lend money to the state at 5 per cent when we could get such paper as this at 6 per cent.

Q What in your judgment, has been the conduct of the cashier since he has filled the office? Has he or has he not, devoted his time and attention industriously, zealously and with fidelity, to the duties of his office? And what has been his deportment at the board, and to the directors of the bank?

A I know nothing of the conduct of the cashier that is exceptional. I suppose he has directed his time and attention indus-



triously, zealously and with ability and fidelity to the duties of his office.

I never saw any thing but what was proper. Never knew him to behave disrespectfully to the board although I have frequently differed with him in his views—those views had nothing to do with the institution.

Q What has been the conduct of the president at the board, and to the directors individually? Does he attempt to controul the discounts at the board, or to act contrary to the wishes of the board?

A I never knew the president to act other than a gentleman of strict propriety to a member of the board, nor to attempt to controul the discounts of the board but in cases where, in the nature of his office, he was bound to do so, though I have seen him tried by personal attacks from one individual.

*John R. Neff, sworn.*

Q Were you a member of the committee which took the loan of 1827; if so be pleased to state the terms of the agreement made at this bank on the 29th June, 1827, by the committees from the Philadelphia bank, the Farmer's and Mechanics' bank, the bank of Pennsylvania, and Messrs. Thomas and John G. Biddle? and also state whether the proceedings of the cashier in that loan were in conformity with the directions of the committee?

A I was a member of the committee which took the loan of 1827—a committee of the Philadelphia bank and Farmer's and Mechanic's bank, met our committee in this room; at the first meeting of that committee we had considerable conversation, but nothing definitely fixed on. We had an application from the Messrs. Biddles, to be included in that loan for the sum of \$200,000—the committee on the part of this bank were opposed, I think unanimously to the Messrs. Biddles being included in this loan.

At the second meeting of the committees of the different banks, the Philadelphia bank agreed to take \$160,000 at or under 4 per cent. advance, if at 4½ per cent. the Farmer's and Mechanic's bank agrees to take \$174,000 with a pro rata proportion of the \$160,000 declined by the Philadelphia bank, if more than 4½ per cent. given, both banks excluded by their own request, they agreed to go thus far and no farther. The committee on the part of this bank, not wishing to invest more than half a million, having about that sum unemployed, saw a probability of the amount being greater than they desired to invest, they being of opinion that it would not be obtained at 4½ per cent. concluded to let the Messrs. Biddles come in for \$200,000, as their offers were to be made without limit. Mr. Chauncey was then appointed by the committee of the three banks to proceed to Harrisburg, as their agent for the loan of 1827. Mr. Chauncey returned and reported that he had taken the whole loan at 4½ per cent. premium, of which sum Messrs.

Biddles held \$200,000, the balance fell to the Pennsylvania bank by agreement. The proceedings of the cashier in that proceeding were in conformity to the directions of the committee as the minutes will show.

**Q** How does the president conduct the discounts at the board? Please to recite the course of proceeding at the board, and say whether he evinces any desire to do any discounts without the approbation of the directors?

**A** The practice at this board since I have been a director, is, the president opens the book wherein is inserted the drawer and endorser and amount of each note. The two directors examine the notes as called off by the president, to see that they are correctly drawn and endorsed. As the president calls off the notes, if they are renewals and no objections made, he puts the letter A, which denotes done or discounted.

With regard to new offerings, he is governed by the directors—when money is plenty the only question appeared to be whether the paper was good or not; when scarce, frequently diversity of opinion, some thought this, others that, or who should be accommodated, and of course settled by the board.

The president, of course the greatest responsibility devolves on him, and by his situation has influence in the board; but I must say if he does ever exercise any influence, it is always on the side of those who are most solicitous—in other words, I have no hesitation in saying with regard to the president, he is as pure as man can be in his intentions, and has the institution at heart, and has my perfect confidence in all his doings.

**Question by committee of legislature.**—Were not the Messrs. Biddles taken in to prevent competition, in the loan of 1827?

**A** If I had not thought it the interest of the bank to include the Messrs. Biddles, I would not have consented to their coming in; in other words, our object was to get the loan on the most favorable terms we could.

**Q** By committee of legislature.—In your opinion, who was most benefitted by the bank taking the late loan of two millions, the state or the bank? and did not the monopoly by the bank and brokers and others, prevent a fair competition in the Philadelphia market for said loan?

**A** As things have turned out, the bank was not benefitted by it, although I thought she would have been benefitted by it. In other words, I thought at the time the loan was taken, the bank was, or would be, benefitted by it, as I considered the loan taken on favorable terms by the bank. It is my opinion that if there was a competent agent who had the sole control of the stocks in Philadelphia, it would be more for the interest of the state.

**Q** By committee of legislature.—Has the bank been compelled to throw out a great amount of good paper, owing to her having so large an amount invested in stocks?

A Since the last loan of two millions, the bank has been obliged to throw out considerable good paper, though I attribute it not so much to the bank taking the loan, as anticipating the instalments.

Q By committee of legislature.—What was the price at which five per cent. state stock was held or sold, in June or July, 1827.

A The price was above par, but cannot answer precisely.

Q By committee of legislature.—Did you ever hear the cashier say that he had proxies sufficient to put out or in whom he pleased as directors? State all you know on this matter.

A I never did hear the cashier say that he had proxies to put out or in whom he thought proper.

14th Jan. 1829.

*James Ronaldson, sworn.*

Q Had you or any of your friends, at the time the late loan of two millions was taken, any funds that it was desirable to invest in the said state loan?

A I cannot say for others—as of myself, I have no money to lend.

*John White, Esq. a director.*

Q Do you consider the taking of the late loan by this bank, under the arrangements made for the purpose, *advantageous for the state*; if so, in what way?

A I do consider the taking the late loan by this bank under the arrangements made for the purpose, *advantageous for the state*—because I believe, if the bank had not made an offer for it, it would not have been taken at the time it was offered by the state.

Q Do you consider that the taking of the late loan by the bank, under the arrangements made for that purpose, *advantageous for the bank*; if so, in what way?

A I do consider the taking the late state loan by the bank *advantageous for the bank*, because. I believe the sales that had been made of that loan by the bank, have yielded a small advance above the interest due on it at the time it was sold, and because the payment of the first instalment into the bank, had the immediate effect of turning the balances with the banks in Philadelphia in favor of this bank; and thus enabling us with safety to see the situation of the bank, to discount liberally such paper as was deemed good, as offered by its customers. I find by a reference to this book, which contains the balances of accounts with banks in Philadelphia, which is laid before the board of directors every discount day, that deducting the balances due this bank from certain banks in Philadelphia, from the balances due from the bank to certain other banks in Philadelphia. That the balance on the 25th June, 1828, was upwards of \$57,000; against this bank on the 28th

June, was upwards of \$75,000; against this bank on the 2d July, was upwards of \$58,000.

The first instalment on the loan was paid on the 10th July, I think 40 per cent. on the whole amount. On 12th July the balances taken in the same way was upwards of \$448,000 in favor of this bank. On 16th July, was upwards of \$429,000, in favor of this bank. On 19th July, was upwards of \$393,000, in favor of this bank. This was a creditor bank for a considerable time after, and generally to a large amount.

**Q** Have not the business and profits of the bank been increased since the late loan was taken; if so, say how, and whether it has increased the deposits and the circulation?

**A** The business and profits of the bank have in my opinion been increased, by the increase of the amount of discounts of the bank and its branches, and by the increase of the amount of stock bearing interest held by the bank. I do not know whether it has increased the deposits or not—I have not examined them.

It appears by the books of the bank that the circulation of its notes has been increased about 300,000 dollars, since the late loan was taken. To give a view of this subject, it appears to me would be proper; and I have made from the books of the bank, and the returns of its branches, a monthly statement of the situation of the bank of Pennsylvania and its branches, from March to December, 1828; taken from the statement of the bank on the 20th of each month respectively, or the nearest date to it, shewing first the balances in favor of, or against the bank, in account with the banks of Philadelphia; the amount of notes discounted by the bank in Philadelphia; the amount of notes discounted by its branches; the total amount of notes discounted by the bank and its branches; the amount of stocks held by the bank bearing an interest, state 5 per cent. stock, Schuylkill navigation 6 per cent., Union Canal 6 per cent., and Chesapeake and Delaware 6 per cent., all included. the total amount of stocks held by the bank bearing an interest, and the amount of notes discounted by the bank together. the amounts of notes of the bank in circulation; the amount of specie in the bank and its branches, all at each date respectively. In the statement the fractional parts of a dollar I throw out. I omit. I refer the committee to a statement which will be furnished.

*Pro ut statement furnished.*

**Q** Of the notes offered for discount during the last year, has not a considerable amount been rejected because they were *not good*? A further sum rejected because they had *too long a time to run*? A further sum, because of the large amount already done for the offerers—and, perhaps still more, because the notes were brought here from New York, for the purposes of creating a fund, to take away specie from our city, and shipping it to Europe? And if the late loan had not been taken, would such paper have been discounted?

A Of the notes offered for discount for the last year a considerable amount was rejected because they were not deemed good by the board. A further sum was rejected because they had a longer term to run, than the board thought it advisable to discount for. We in some cases discounted paper considered very good that had a longer time to run, than it was understood other banks in the city were willing to discount.

During the last winter and spring, a considerable proportion of the paper, which was considered good, and rejected by the board, was believed to be intended to create funds to draw specie, which was then to a large amount shipped to Europe, from this port and particularly from New York.—This was in addition to the usual spring shipments of specie to the East Indies; which prevented the banks from discounting as they otherwise would have done. It was understood that a large amount of paper was sent here from New York, to be cashed, and very heavy drafts on short sight, made by the merchants of New York, on the auctioneers and others here, on whom they had a credit by the consignment of goods, or the right to draw from other arrangements for the purpose of creating funds to draw specie, and it was considered by the bank under the circumstance, should be very cautious in discounts, some of the paper was rejected, because it was thought that the offerers were already discounters to as large an amount as it was thought prudent for this institution to go for them.

Q What has been the conduct of the president, since you have been a director? Has he devoted his attention, with industry, zeal and ability to the duties of his office? And has his conduct at the board, and in making the discounts, been impartial, and to the approbation of the board?

A Since I have been a director in this bank, I believe the president has most faithfully and zealously devoted his time, attention and talents to the duty of his office. His conduct at the board, has been uniformly in my opinion, that of a gentleman of a high sense of honor and strict propriety. In making the discounts, I believe he has always intended to be impartial, and was so I believe; and I believe he received the approbation of the board in general.

Q What is your opinion of the conduct of the cashier, since you have been a director? Has he been industrious, zealous and faithful in the discharge of the duties of his office? And what has been his deportment at the board, and to the directors of the bank?

A In answer I say, that since I have been a director in this bank, I believe the cashier has been industrious, faithful and zealous in the discharge of the duties of his office—his deportment at the board, has been such in my opinion, as his situation required of him, and to the directors of the bank, that of one gentleman to another.

Question by committee of legislature :—If the arrangement which you mention in your answer to the first question, had not

been made, is it your opinion that the loan could not have been taken?

A If it had failed at that time, I think it would have injured the credit of the state. It might have been got afterwards, but probably not on as good terms to the state as it was taken at.

Question by committee of legislature:—Was there more danger of specie being taken from the country by discounts to merchants by the board, than by large loans to *brokers by the president*, as one of the committee of finance?

I do not know of any large loans to brokers by the president alone,—there was great danger of taking specie, I mean last winter, when there was great demand for specie, and we endeavoured to guard against it, by not discounting paper, created by drafts from New York, and by others who were known to be in that line. I do not know of any, nor do I believe there were any large new loans made to brokers last winter, by the committee of finance.

Question by committee of legislature:—Could not the loan at any period have been sold at a greater advance, than it has generally been sold at?

A I think it probable, that the stocks held by this bank, could have been sold at some periods, at a higher price than they had previously been sold at, or than was afterwards got for them. I was not one of the stock committee, therefore it was not my duty to attend to that business.

*Jacob Ridgway, called.*

Q What do you know, relating to loans made by the president, during the first half of the year 1828, for the accommodations of Messrs. Biddles?

A In January, 1825, the bank had more means than they could employ; a committee was appointed on the 29th January, by the directors of this bank, to discount notes on the deposit of stock, at the rate of 5 per cent. The inexpediency of appointing this committee for that purpose, was in order that it might not interfere with our regular discounts at the board, which we were doing at the rate of 6 per cent. and as the superabundance of funds might not last for any length of time, it was thought best to appoint a committee, for the special purpose of discounting at the rate of 5 per cent. on a special pledge of stock, for a term not less than two months, nor exceeding six months, for a sum not exceeding 200,000 dollars, soon after the appointment of this committee, there was a considerable sum discounted in this way, for the Messrs. Biddles, I think to the extent of about 200,000 dollars, on a pledge of stock at the rate of 5 per cent. This was continued; sometimes it varied a little—notes were renewed from time to time till January 1828.

In January 1828, I believe there was remaining somewhere about \$133,000 dollars of their notes, and in July of the same year, were reduced to a trifle. Between the period of January and July, money was scarce—the Messrs. Biddles applied from time to

time, to have some accommodation for those notes, which had been originally created when money was abundant. This proposition of theirs seemed by many of the board to be rather objected to, as it was asked for by brokers who were dealers in money; but a majority of the board were of opinion that as they had taken our money when it was abundant, we ought to shew a disposition to accommodate when it had become more rare. They made application to this board, when one of those notes was about becoming due, whether the board would renew a part and perhaps in some cases the whole which was payable.

Those applications were made sometimes several days before such notes fell due; at other times, were made when they did fall due; and I believe in one or two instances, were made after they became due and paid.

Where these notes became due, some day or two after the meeting of the board, the application was communicated either in writing or verbally to the president; the president asked the board whether the application for renewal should be acceded to; this generally produced a discussion as to the propriety and expediency of the measure. After this was gone through with, the president in all cases where I was present, took the sense of the board, whether such notes should be renewed, and for such amount as was then mentioned. It appears that on the 5th January, 1828, there was a note for \$20,000 so renewed; on the 2d February there were two notes, for \$40,000 each, renewed; on the 26th March there was a note of \$40,000 payable, of which \$20,000 was renewed. On 2d April there was \$10,000 renewed towards the payment of a \$20,000 note; on the 12th April there was \$20,000 renewed towards the payment of a note of \$40,000; on the 18th June a note was renewed for \$20,000.

My impression is, that those notes, when so renewed, were at a discount of six per cent. under the same security as when originally given, when they were done at five per cent. A great portion, or all of those notes, were, I believe, discounted by the president, under the sanction and authority of the board.

Q What do you know respecting a note of \$13,900 discounted on the 16th July, 1828, for the accommodation of Mr. Ralston?

A I believe Mr. Mathew Ralston purchased a bill of exchange from this bank, under the authority of a committee who had the direction of selling bills of exchange. I think this sale was made to Mr. Ralston, on the 14th or 15th of July, 1828. I am not aware what arrangement was made for the payment of the bill, or whether any arrangement was made; but he offered in payment a note drawn by a gentleman who had been a long time absent from this country, and who had lately returned, and as public fame said, with a good deal of wealth. The note I considered perfectly safe, independent of any responsibility of the endorser. This note, or a memorandum of the note, I think, came before the board. This

note was discounted, whether by the president, or whether regularly by the board, I would not undertake to say, but it appeared to be the understanding of the board that it should be done. There was one day more charged on the note than if it had been for money, in order to compensate for the non-payment of the bill, which was due the day previous.

**Q.** What, in your judgment, has been the conduct of the president since you have been a director? Has he been attentive, zealous, and industrious? Has he conducted the business of the board with impartiality, and with due respect to the opinions of individual directors?

I have been a director for about sixteen or seventeen years, perhaps. I came into the institution after the president occupied the station he now does. Since I have known him in this station, I have ever found him attentive and zealous for the interest of this institution. We have often differed in opinion in minor matters, with regard to paper that was offered to be discounted. In many instances he persisted, and in others he has acquiesced; but I have always had an opinion that he was governed by the purest motives in what was right for the interest of the bank. If he has ever shown any partiality, it has been to those who opposed him the most in regard to discounts. It is not, then, to those who have generally gone with him. I believe his general conduct is good, by a conviction of acting correctly towards this institution, without any bias or favoritism. It has been a rule with him, I believe, to pay due deference to the opinion of every director; where there is a division of sentiment he has regularly taken the sense of the board, and decided as circumstances might so direct.

**Q** What is your opinion of the conduct of the cashier of this bank, since he has been in office? Has he manifested zeal, industry, ability and fidelity, in executing his duties; and what has been his deportment at the board?

**A** My opinion has ever been, that the cashier has been a faithful, zealous and efficient officer. He has had much to do with this institution. He has performed those duties with a great deal of promptness, and in my opinion, with great zeal and fidelity towards the institution. His deportment at the board has been that of a gentleman, and if he has ever manifested any excitement, it was provoked in a manner that no gentleman ought to submit to.

*Tobias Wagner, a director, sworn.*

**Q** What was your opinion respecting the taking of the state loan, of 1828, by the bank; was it in your opinion advantageous both to the bank and state, or either?

**A** In my opinion the late loan was mutually advantageous to the state and bank. I was in favour of it, because I considered by the bank taking a part of the loan, the value of the large amount previously held by the bank would not be depreciated in the market.



The bank by arrangement in the sale of stocks in England would be able to open a new market for the sale of it. I took \$25,000 of the stock.

Q What in your opinion has generally been the cause of the board rejecting paper offered for discount within the last year? And when the bank could not with safety discount all that was offered, was there in the amount discounted, any favoritism to brokers or others?

A I think it arose from various causes; the first cause, the inability of the bank at all times to discount the whole amount of the sums offered on one day. Another cause when the balances due other banks are larger, as has occasionally been the case; great danger of heavy drafts of specie from New York, or for shipment to parts of Europe.

When there was more offered than could be done by the board, as equitable distribution of the income as could be made, was made without any favoritism. From my experience in this board, of not quite a year, it is my impression there are no favors shown to brokers; on the contrary, I think they are not favorites of this board.

Q Do you understand that inability to discount all the paper offered was confined to the bank of Pennsylvania, or was that inability general among the banks in the city at those times of pressure?

A I have understood that in times of pressure, other banks have been obliged to reject large sums of the best business paper, and that on the average, I think ~~the~~ bank of Pennsylvania has accommodated its customers about as well as most other banks.

Q What in your opinion would have been the effect of selling the state stock held by this bank, at public auction last fall? Has the publicity given to a desire on the part of the bank, to dispose of a part of the state stock held by it, been favourable to the sale of it?

A As I was a holder of a part of the loan, I attended to the market with some attention, without any intention of selling. I intended my money as a permanent investment. When Mr. Sullivan's imprudent resolution, as I considered it, to sell a large amount I think \$500,000 at public auction was made at this board, and a very feverish anxiety manifested on the part of a very few members of the board, to dispose of the state stock held by the bank, and the knowledge that the bank was a large holder, and the desire to sell having by some means become public, I think these circumstances had a tendency to keep the market in a depressed state.

Q. Did you understand at the time the loan was offered for, it was to be a monopoly or was it not known, that the bank would permit any one who wished to take a part of it with her?

A I never considered the taking the loan a monopoly, it was as publicly announced in the papers, that proposals would be received at Harrisburg, as such offers usually are.

I never understood that the bank ever refused any individual to participate if they applied.

I considered the whole community had the same opportunity that the bank had, of taking any part they pleased.

Q Does the president conduct the business of the board, with impartiality and with a due respect for the wishes of individual members? And has he manifested industry, zeal and ability in his office?

A I believe the president has, and done it with great courtesy.

Q What in your judgment, has been the conduct of the cashier? Has he executed his duties with ability and fidelity?

A I believe he has, and always ready to give that information, when it is essential to the operations of the board.

The president offers the following explanation in writing in relation to the alteration of the income of the bank, as given in evidence.

The statement of income, in the book of totals, for May 25, 1825, appears to have been altered. By whose direction it was altered does not appear. The fact in relation to the income of that day, appears to be:

On the 22d February, 1825, Nevins and Townsend's note for 33,000 dollars was discounted by the stock committee, upon a deposit of 300 United States bank shares, payable three months after date, under a written agreement, that should the said Nevins and Townsend signify to the cashier in writing, five days before the said note becomes payable, their wish to renew the same for ninety days, and pay the discount at the rate of five per cent. per annum, then the bank was bound to renew the note for ninety days. The note came due on the 25th May, 1825, before which time, by their letter of 14th May, 1825, the drawers had informed the bank of their wish to have the note renewed for ninety days, according to the contract; and in their letter of 21st May, the new note was received for the purpose; and the same was renewed on the 25th of May, 1825. Of course there was no income to be derived, from the note of \$33,000 renewed; but it was placed on the same basis as if the note had been originally taken at 6 months.

*Joseph P. Norris, president, examined.*

Q Have you carefully observed the conduct of the cashier? And has he, or has he not, at all times since he has been in the office, been industrious, zealous and faithful in performing his duties?

A I have paid great attention to the conduct of the cashier. I have gone over the institution constantly. I have paid great

attention to the correspondence of the institution. When the cashier was away, all the letters addressed to him have been opened by me. I have never seen any thing to excite my suspicions in any way whatever, but that he was an industrious, zealous and faithful officer of the institution. He is here between 7 and 8 in the morning at this season of the year, and I believe don't leave it till candle light, except to go to dinner. I would wish to mention some facts. When he has been away, and the letters addressed to him have come to me, in two instances, I recollect in which bills were transmitted to him; that after having them collected, I could not say to what account they ought to go, and accordingly put the money in the letter, and put them into my drawer until his return.

January 15.

I recollect an instance of the cashier coming into this room to me with an open letter addressed to him as cashier, containing a bill or draft, the object of which was not sufficiently explained so as to place it to any specific account, he asked me, "Mr. Norris, what shall I do with this?" My reply was, "You can only retain it until you receive further directions or orders, which I suppose in a post or two you will receive."

January 15, 1829.

Joseph P. Norris, Esq. president.

Question by committee of the legislature.

What amount has been loaned to persons called *brokers* within the last two years?

A The total amount of notes discounted by this bank for persons called brokers in 1827 and 1828, on personal security, was \$273,886, on security of stock \$473,324.

Question by committee of the legislature.

What amount of *accommodation* and what amount of *business* paper has the bank at this time discounted?

[Answer in writing in appendix.]

January 16, 1829.

Committee met.

The president laid the books before the committee for the purpose of showing how the business of the bank is conducted.

The president of the bank laid before the committee of the legislature a communication dated 15th January, 1829. (see appendix.) A communication from the president, (see appendix.)

Adjourned to meet at Harrisburg, on Monday 19th January, at 3 o'clock, P. M.

Laid on the table.

*In the Senate, February 16, 1829.*

The Secretary of the Commonwealth being introduced, presented a message from the Governor, accompanied with documents, which were read as follows:

*To the Senate and House of Representatives of the Commonwealth of Pennsylvania.*

GENTLEMEN—

I have directed the secretary of the commonwealth to lay before you a letter from the governor of South Carolina, together with certain resolutions passed by the legislature of that state, relating to the powers of the general government to regulate duties on imports, and respecting internal improvements.

I also have directed to be laid before you a memorial on the subject of the late tariff, addressed by the general assembly of the state of Georgia to the anti-tariff states.

J. ANDW. SHULZE.

*Harrisburg, February 16, 1829.*

*Executive Department, }  
Columbia, S. C. January 19, 1829. }*

SIR,—In compliance with a resolution of the general assembly of this state, I have the honor to transmit to your excellency certain resolutions, relating to the powers of the general government, with a request that they may be brought before the legislature of your state.

Respectfully your obedient servant,  
STEPHEN D. MILLER.

*Resolutions adopted by the state of South Carolina.*

*In the House of Representatives, }  
December 20, 1828. }*

1. *Resolved*, That the opinion of this legislature, on the subject of the assumed right of Congress to regulate duties on imports, for the purpose of encouraging domestic industry, as heretofore expressed in the various resolutions adopted in the years 1825 and 1827, is unchanged; and after the further aggression by the passage of the tariff act of 1828, this legislature is restrained from the assertion of the sovereign rights of the state by the hope that the magnanimity and justice of the good people of the Union will effect the abandonment of a system, partial in its nature, unjust in its operation, and not within the powers delegated to Congress.

2. *Resolved*, That the measures to be pursued consequent on the perseverance in this system are purely questions of expediency, and not of allegiance; and that for the purpose of ascertaining the opinion and inviting the co-operation of other states, a copy of these and the resolutions heretofore adopted by this legislature, be transmitted to the governors of the several states, with a request

that they be laid before the several legislatures to determine on such ulterior measures as they may think the occasion demands.

Ordered to Senate for concurrence.—By order of the House.

R. ANDERSON, C. H. R.

In the Senate, December 20, 1828.

*Resolved*, That the Senate concur.

JOB JOHNSTON, C. S.

*In the House of Representatives, }  
December 15, 1825. }*

1. *Resolved*, That Congress does not possess the power, under the constitution, to adopt a general system of internal improvement as a national measure.

2. *Resolved*, That a right to impose and collect taxes, does not authorise Congress to lay a tax for any other purposes than such as are embraced in the specific grants of power, and those necessarily implied therein.

3. *Resolved*, That Congress ought not to exercise a power granted for particular objects, to effect other objects, the right to effect which has never been conceded.

4. *Resolved*, That it is an unconstitutional exercise of power, on the part of Congress, to tax the citizens of one state to make roads and canals for the citizens of another state.

5. *Resolved*, That it is an unconstitutional exercise of power, on the part of Congress, to lay duties to protect domestic manufactures.

*Resolved*, That the House do agree to the resolutions. Ordered that they be sent to the Senate for concurrence.

By order of the House,

R. ANDERSON, C. H. R.

In the Senate, December 16, 1825.

*Resolved*, That this house do concur in the resolutions. Ordered that they be returned to the House of Representatives.

By order of the Senate,

WM. D. MARTIN, C. S.

*In the Senate, December 12, 1827.*

1. *Resolved*, That the constitution of the United States is a compact between the people of the different states with each other, as separate, independent sovereignties; and that for any violation of the letter or spirit of that compact by the Congress of the United States, it is not only the right of the people, but of the legislatures, who represent them to every extent not limited, to remonstrate against violations of the fundamental compact.

2. *Resolved*, That the acts of Congress, known by the name of tariff laws, the object of which is not the raising of revenue, or the regulation of foreign commerce, but the promotion of domestic manufactures, are violations of the constitution in its spirit, and ought to be repealed.

3. *Resolved*, That Congress has no power to construct roads and canals in the states, for the purposes of internal improvement, with or without the assent of the states in whose limits those internal improvements are made; the authority of Congress extending no farther than to pass the "necessary and proper laws," to carry into execution their enumerated powers.

4. *Resolved*, That the American Colonization Society is not an object of national interest, and that Congress has no power, in any way, to patronize or direct appropriations for the benefit of this or any other society.

5. *Resolved*, That our senators in Congress be instructed, and our representatives requested to continue to oppose every increase of the tariff with a view to protect domestic manufactures, and all appropriations to the purposes of internal improvements of the United States, and all appropriations in favor of the Colonization Society, or the patronage of the same, either directly or indirectly by the general government.

*Resolved*, That the Senate do agree to the resolutions. Ordered that they be sent to the House of Representatives for concurrence.

By order of the Senate,

JOB JOHNSTON, C. S.

In the House of Representatives, Dec. 19, 1827.

*Resolved*, That the House do concur in the resolutions. Ordered that they be returned.

By order of the House,

R. ANDERSON, C. H. R.

*Memorial on the subject of the late tariff, addressed by the general assembly of the state of Georgia, to the anti-tariff states.*

*House of Representatives,*

*Wednesday, December 17, 1828.*

A memorial from the Senate and House of Representatives, in general assembly, representing the feelings and opinions of the people of the state of Georgia upon the tariff law, passed at the first session of the 20th congress; submitting to the states opposed to that obnoxious law, a summary of the principles of the opposition of this state to it, and requesting a concurrent constitutional opposition to the law and the system which it is intended to foster.

The Senate and House of Representatives of the state of Georgia in general assembly met, solicit the concurrence of their sister states opposed to the tariff lately passed, in resisting the law and its operation, upon the following reasons, and in the manner hereinafter proposed.

1st. We oppose the tariff law, last enacted, because we believe it to be both in its object and its spirit, unconstitutional.

It is unconstitutional—1st. Because the power "to lay and collect duties and imposts; to pay the debts, and provide for the common defence and general welfare of the United States," is

abused and perverted to the accomplishment of objects not within the sphere of direct federal legislation. The power intended to be given by the constitution to congress, is that of raising a revenue for objects specified.

The late tariff destroys the revenue, and is intended and avowed to have for its object, the encouragement and protection of domestic manufactures. As it destroys, or at least, diminishes the revenue, it is so far inexpedient.

It operates thereby, indirectly, as an onerous tax upon the consumers of southern productions. So far, it is unequal and oppressive—therefore, it is inexpedient and impolitic as a general law.

It intends to encourage and protect domestic manufactures, by reversing the accustomed course of exchange in trade—viz: the raw material for manufactured commodities. It thereby intends to effect an entire alteration in the system of our commercial intercourse with foreign nations. Hitherto, the trade of the United States has been comparatively absolutely free; subject only to regulations, expedient when considered in relation to the raising of a revenue. The present tariff restrains its freedom, and therefore lessens both its extent and its profitableness.

2dly. It is unconstitutional—Because if it be defended under the power to “regulate commerce with foreign nations” while the avowed object is to encourage and protect domestic manufactures, it is a palpable abuse of the power given by the language of the constitution—for under a power of prescribing the *rules* of exchanging foreign and domestic commodities, the power is so perverted as to endanger not only the prosperity of our commerce, but almost its very existence, in the anxiety to accomplish an object altogether domestic and even sectional. An object, too, which the constitution intends to effect by means prescribed, and altogether different from those used. For, under the power to promote “the useful arts” an ample and effectual general power, with a prescribed mode of use, resides in Congress to encourage and protect all useful arts. To use another and a different power, capable, indirectly, of effecting such objects, concurrently with that, obviously intended to effect them, is an unconstitutional abuse of the former power.

3dly. Independently of its unconstitutionality, the law is inexpedient, and oppressive generally, particularly on the southern division of the United States.

It is inexpedient, because it brings into premature existence a vast system of industry, which should be, and which in time would be, the natural and spontaneous production of circumstances, and the condition of the country. This is nothing but pure political empiricism. It is inexpedient, because that industry having this factitious origin, must be sustained by a continued and like factitious support. Law after law will be required or demanded, to support that department of labor, which springs up under the encouragement of law. Avarice and cupidity are extravagant in their schemes of pecuniary adventure; and every revulsion of their

affairs which injudicious or boundless speculation may produce, will, as the commercial policy of England exemplifies, be sought to be remedied, by cumulative impositions upon foreign commerce.

It is oppressive, because one species of industry is directly supported by government, at the expense of other branches of industry. The productions of southern agriculture, which hitherto have mainly supplied the exportation of this country, and drawn its varied and abundant importation of manufactured commodities, are almost *forced* into domestic markets, and confined within one channel.

A liberal reciprocity of trade, between our own and foreign nations, being by this means destroyed, the vender of agricultural products is in effect deprived of a choice of markets, either foreign or domestic, and compelled to vend in the latter. Confined to that, he is dependent on the manufacturing consumer, for the price of his raw materials. The competition of manufacturers cannot sustain their old prices; and the law operates unequally and oppressively in this—that the agriculturalist is deprived of the liberty of choosing his market. This liberty, hitherto enjoyed, and which has hitherto been his security, for fair and adequate prices of his productions, by exciting foreign and domestic competition, is in effect taken away. For heavy impositions upon foreign imports, exclude foreigners from market, by destroying the equality of reciprocal advantages. Thus, the domestic purchaser controls the market. The advantage heretofore enjoyed by the agriculturalist is destroyed. He no longer can control his prices by the power of optional disposition, at home or abroad, but is controlled by purchasers independent in their fortified monopolies.

This abstraction of an indisputable right of the agriculturalist, under the free trade intended by the constitution, is not, and cannot be compensated by the promised, yet contingent, remote, and improbable advantages resulting from manufacturing rivalry. It is inexpedient, because it brings prematurely into existence, those manufactories whose materials are drawn from the mines of the earth, by imposing duties on the articles manufactured abroad, with a view to prohibit their introduction, and protecting the manufacture of the same articles at home. The prices of manufactured imports are thus regulated by law, to effect an object in its nature partial and sectional. This too, is a restriction which operates unequally. The consumer is deprived of the advantage of seeking a supply of his wants, on equal terms, at home or abroad, at his option. The prices of foreign manufactures and other commodities, are arbitrarily fixed high, to force the consumer to purchase, what, under such restriction, can be procured cheapest; which must be, the domestic manufacture. Here the manufacturer is the favorite of government—legislation directly confers upon him peculiar advantages—while the agriculturalist pays him tribute, and is in dependence upon him.



It might be assuming too broad a ground, to say that the constitution forbids the encouragement and protection of any object of industry; that it forbids the protection of any manufacture whatever. It is both advisable and patriotic, that all the necessaries and implements of military use, in protecting and defending our rights, and our honor as a nation, should be the product of national industry. "To provide for the common defence and general welfare," is a power clearly given to the congress. The power given is vague, and if taken separately, indefinite; but when taken in connexion with the cautious, and even jealous limitations of federal powers, and considered in reference to the specified general objects of our confederation, it cannot be deemed to be a power, limitable only by the discretion of a majority of congress. Does not congress provide for the "common defence and general welfare," in erecting fortifications? Is the "general welfare" something distinct from, and separable from, the "common defence?" And if so, what class of objects and measures can be enumerated under it? The power to "provide" for the "general welfare," certainly confers not a discretionary power over every object of human legislation. It refers to appropriations of money, for proposed objects, included within the enumerated federal powers. Whether any proposed measure, or regulation, will promote the general welfare, is one question entirely speculative. Whether legislative action upon such measures, is within the limit of constitutional competency, or whether its object be constitutionally pursued, is another question. Measures of an experimental character, and of problematical operation, upon the general good, transcend the prudent restraints, and violate the spirit of the constitution. To guard it from violation, is the proper object of state vigilance: to restore its purity, a proper and legitimate object of their several or united endeavors.

The spirit and objects of the federal compact place a virtual constraint upon latitudinarian construction and implication. The power is clearly limited by its objects. We object, therefore, to the expansion of federal powers by construction. We deny the right of congress to restrain the freedom of our commerce, to protect, as it is said, domestic industry—and we affirm, that a power wisely given to congress, is carried to an extent, at once unnecessary, inexpedient, and even abusive.

4thly. The late tariff "altering the duties on imports," if the power of the constitution were strictly adhered to, would be a revenue bill. It is calculated to diminish the revenue. In this, the law is inexpedient and injudicious. But the avowed object of the law is to promote manufactures at home. Under the power, therefore, to raise a revenue, for specific national purposes, a different object is pursued. In this the power is perverted. If the law be called a regulation of commerce, it is, in like manner, inexpedient and oppressive.

If the law in question, upon its face, promised a greater prosperity to our external commerce, which the constitution intended to

preserve and extend by wise regulations, we should deem them to regulate it, faithfully fulfilled and executed. But on its face, the features of ruin are set forth in full relief; and a d experience has realised the consequences which its provisions are cated. Is the law, in this light, calculated to produce its legitimate object? If experience of the contrary, proves not merely inefficiency, but its injurious operation, policy on the first ground requires; justice, expediency and necessity demand it on the second. If the decline and ruin of our commerce, is the consequence of an attempt to regulate it, the consequence proves the measure to have been injudicious, either in conception or execution. Either would be a sufficient ground of repeal. If under the pretence of "regulating commerce," or of "raising a revenue," the aim is to effect a collateral and indirect object; if a legitimate power is used in disguise, to accomplish a purpose, which, if the power is right to accomplish it, existed, could be accomplished by a direct, overt, and undisguised exercise of the power; then, and in the first case, the legitimate power is abused and perverted: and in the second case, the stratagem resorted to, argues the consciousness of using improperly, a proper power, and a disregard of the restraints and limitations of the powers of the constitution. This spirit is censurable, and calculated to impair the vigor of the constitution and vitiate the purity of federal legislation; it leads to the use of unconstitutional powers; it leads to illiberal and sectional legislation; and produces a disregard or oblivion of national interests.

While complaining of a law intended solely to promote sectional objects, we will endeavor to avoid an opposition upon sectional interests and feelings. We are aware, that if each state consults its own interests alone, the consequences might be particularly disagreeable and injurious to others; so too, if one section of the union acted on the same illiberal principle. It might be impracticable in a federal government of these states to secure all rights of independent sovereignty to each, and all the particular interests of an individual state, or section of state, to their fullest extent, and yet provide for the interest and safety of all. To reconcile all the federal legislation, partial and conciliatory compromises of sectional interests must be made. Individuals entering into society must give up a share of liberty to preserve the rest. This is the rational and harmonizing spirit and doctrine of law. It is strongly applicable to these states, confederated for the great purposes of general defence, general benefit, and general harmony. For the advantages and benefits of union, the interests of particular states, or divisions of states, should be in some measure compromised; that a spirit of liberal and fraternal conciliation should regulate all measures intended to advance their pecuniary prosperity. Thus, if it be the interest of the middle and western divisions of the Union, to manufacture, their interests should not be promoted by making the agricultural divisions of the Union tributary to them.

The population of the first divisions, which secures to them a numerical predominance in the federal councils, enables them to

control the measures of legislation to their particular benefit. It is true that the political will of the Union, (if a majority of members on the floor of Congress be considered a fair representative of the will of the Union,) was in the Congress which enacted the tariff, clearly in its favor. Are we told, that we must submit to the will of the majority? We reply, that while we admit the general propriety of submission to that voice, does it imply, that we are to observe the doctrines of "passive obedience and non-resistance?" That would preclude the constitutional right of remonstrance. But such sentiments are not the native growth of freedom and republicanism. Besides, the ability to use a power, does not necessarily imply the expediency of using it; on the contrary, where the difference between the majority and a minority is small; where opinions and feelings on subjects, are almost in equipoise, reason and prudence require that a dominant party should use its power with delicacy and caution. This should especially be the case with the states of this Union. Under our federal arrangement, Congress is made the depository of certain powers, yielded up by the states severally, for general objects; objects which in relation to the Union, may be called national, in contradistinction to state objects. Amity, arising from, and cemented by a thousand sympathies, and benevolences of revolutionary endearment, presided at this scene of compromise and concession. It becomes us to recur to this period; to catch from the records and events of those times, the spirit which influenced their political agents; to carry this spirit with us into the councils, which act upon the interests of the nation. Those who look not back to their ancestors, seldom look forward to posterity: the present fills their conceptions, and the future and the past are alike indifferent to them. When the past is thus considered, the wise and judicious will doubt and hesitate to exercise a power, or execute a measure, ruinous of the interests of, and therefore offensive to a large minority of the Union.

But to reconcile the southern divisions of the Union, averse to changing its pursuits, the fruits of which have hitherto been profitably exchanged for the various commodities of foreign nations—to reconcile New England to the diminution of her boundless carrying trade, the former is promised an eager market, and a fair price for the products of their soil; the latter is promised abundant employment, in exporting the rich and various manufactures of the United States. These promises proceed upon the following assumptions:

1st. That by legislative protection, domestic fabrics, and manufactures in general, can be supplied at as cheap or cheaper rates, and of qualities as good as they can be brought to us from abroad.

2d. That the domestic consumption will use up all that quantity of our usual exports, which our imposts may hereafter prevent foreigners from taking.

3d. That the nautical carrier shall experience no inconvenience from the ruin of the usual carrying trade. That it shall be com-

permeated by a new and equally extensive and profitable trade, carrying the competing manufactures of America into distant markets.

These assumptions proceed upon grounds highly improbable, nay, almost impossible. Contingencies are promised in satisfaction for certainties: benevolence is proffered in substitution of rights. These are the expedients used to soothe an indignation aroused by the rigorous and oppressive exercise of power—a power distorted and perverted. We decline a repetition of the powerful expositions made against the first assumption. The price of a manufactured article is made up of three components. 1st, The price of the raw material. 2d. The wages of labor. 3d, The profits of capital. The powerful expositions which have gone forth to the world, show the futility of the first assumption. Other assumptions are entitled to as much credit as the first.

The present tariff is calculated to diminish our revenue. If the course of policy, pursued in raising the imposts on all imports, fully effected, and the domestic manufactures supersede those hitherto imported; in which process, our external commerce will be dwindling away, and with it our revenue, the question arises, will we be the resort to raise a revenue? Direct taxation. We deplore the time when this will take place; when the citizens of different states will be called on to support, by direct taxes, not only their particular state, but also the federal government. Patriotism will cheerfully submit to onerous exactions, to sustain the government in exigency and peril, but it will feel with indignation the weight of any imposition which sectional power, influenced by the illiberality of sectional interests, may impose. It will feel with regret, mingled with a proud contempt, a faithless departure from the letter and spirit of a compact formed with the fondest hope of its perpetuity; and hitherto until recently, cherished and adhered to with an exalted and patriotic reverence. Taxation is a power, which to avoid offence requires a delicate use and execution. An indirect, insinuating and therefore, inoppressive mode, is preferable to any direct taxation. When the tax of an article, or item of property is disguised and concealed by its price—which in relation to the article itself is considered its fair equivalent—the tax is paid, and is not felt. It falls almost insensibly upon the consumer. And mankind in this way, will pay with no repugnance, a sum of taxation, which if demanded of them as a tax, *eo nomine*, and in cash, they would reluctantly hand forth. The payment of two specific taxes, for two specific objects, would be throughout the states disagreeable, and would seem and feel oppressive; however constitutional and proper it would be amidst national necessity. But the prosecution of a course of policy by the federal government, which would render this resort, always necessary for its support, is a course which we feel opposed to, and will perseveringly and decisively resist. To this result the tariff policy, with its avowed object, tends—to that as the instrument of effecting it, we will yield a full and steady tri-

bute of opposition. The exports of southern production, have, and still constitute, the chief mean of exchange for all articles brought from the abounding stores of British industry. The tariff, intending to promote domestic manufactures by almost prohibiting this exchange, intends to force southern products into northern markets. By this, the agricultural and mercantile interests are oppressed. Is it not the tendency to restrain and diminish foreign commerce? Does it not abuse and pervert the power, "to raise a revenue," as well as the power "to regulate commerce?"

Congress has power "to promote the useful arts." Among them, certainly the arts of manufacture and the art of agriculture. How? By *forcing* the fruits of agricultural industry into one channel, and into one market? By *forcing* them to contribute to manufactures? And thus in effect giving bounties to manufactures, to stimulate their activity and their enterprize? No—but by securing to the inventors of improvements in the useful arts, the benefits of their inventions and their discoveries. Household industry supplies the immediate wants of families, their food and their raiment. Advancing one step further, an individual for gain, and the convenience of a neighborhood, may manufacture, to supply for equivalent compensation, the wants of a population around. Thus the progress is spontaneous and natural. The progress of their increase and diffusion throughout a country, is alike natural, and proceeds upon the common principles of necessity, convenience, profit and ability; as these are developed amidst an increasing and improving population, daily and yearly acquiring a thousand artificial and refined wants. Manufactories, which supply the various conveniences and elegancies, which refinement or luxury, either require or crave, will naturally spring up by the enterprize and cupidity of individuals. They will be resorted to as a profitable or supporting species of labor by thousands; and will be seen to increase and prosper, according to the amount of the wants and demands of population.

The greatest stimulant to the improvement and extension of the useful arts, exists in the power resident in the federal government to appropriate to individual genius and skill, the benefits of its inventions and discoveries. The federal convention, sagaciously foreseeing this natural progression of improvements wisely withheld from Congress, the power to promote them by additional protecting laws. By this power the same rewards are held forth to active and inventive genius, throughout the Union. What further power could have been necessary? Can Congress incorporate a company of manufacturers, in any one of the states? It cannot. If a power of protection, other than that specified, "to promote the useful arts," was intended to be given by the constitution to Congress, why was it not given in some direct, positive, indisputable form? But an express refusal to give such a specific power, is recorded on the journals of the convention! And the power of

## PROTEST AGAINST TARIFF.

ent rights, for inventions and discoveries substituted  
edient. A power highly remunerative and incapable

or raising a revenue is constitutional and necessary.

At this, no object was intended by the power. The legis-  
of the several states is the proper power to promote  
s, by incorporating companies. Such is the common  
centrating the wealth of individuals, and rendering it  
ited, competent to do, what individuals could not ef-  
too, are voluntary associations, formed with the hope,  
ty of particular advantages; and as such, their efforts  
sidered as private enterprises. Thus, there exist two  
itories of powers, capable of producing the same ef-  
different modes. The federal power, specified in the  
(Art. 1st sec. 8) "to promote the useful arts." And

wer of incorporating companies, or giving exclusive  
r any specific objects, promotive of its internal pros-  
example, manufacturing companies, when circumstan-  
h to a combination of individuals, the prospect of pro-  
ons. These powers are, too, in strict concurrence.  
and necessary tariff may, collaterally, stimulate do-  
stry, arouse activity, and inspire speculation. Such  
often succeed upon a truly revenue regulation; and the  
following, proves the regulation to be judicious. But  
to say of a tariff which prostrates commerce? Which  
oppressively on the fair and honorable enterprise of  
as to produce the same effects, as a law, to promote

We must condemn it as injudicious; and when we  
law to have been enacted to encourage domestic man-  
e must condemn it as unconstitutional. Further: If  
r was intended to reside in Congress, other than that  
ven, why did the constitution expressly forbid the im-  
uties on exports? Does not this exemption intend,  
promote an absolute freedom of trade? Yet the pre-  
dicy intends, by a reverse operation, to defeat the ef-  
emption.

promoted her woollen manufactures by inhibiting the  
of wool. To promote manufactures, she pursued a  
opposite of the "American system." Yet the Eng-  
that which would directly promote the objects of the  
system." This plan cannot be pursued—it is forbid-  
dution. Yet such, if the constitution had intended it,  
been the power given to legislate the country into  
ng towns. Prohibiting the exportation of our raw  
would have induced the necessity of manufacturing.  
untry might have become an inexhaustible supply for  
the commercial world.

on of the Union may be destined by its physical cir-  
mainly to pursue manufacturing. If so, the rapid

progression of every thing, amidst lively and unfettered enterprise, will early develope that destiny. It will be sustained by circumstances more powerful and permanent than legislation. Amid the rival industry of sister states, absolutely free in their social and commercial intercourse, what is mutually advantageous will be developed with insensible rapidity; when thus made known interest will lead to their enjoyment. Proceeding thus, a federal and domestic legislation, liable to the natural bias of sectional interest, and therefore to abuse and partial oppression, being abandoned, the geographical delineation and fosterage of particular interests, will produce no heart burnings among the several divisions of our Union.

We therefore, recommend to our sister states opposed to the recent tariff law, solemnly to protest to the Senate of the United States against that obnoxious law, to deprecate the abuse of limited powers, to accomplish ends capable of accomplishment by legitimate and prescribed means.

We recommend a remonstrance to the states in favor of the tariff, advising of its injurious tendency and operation to their sister states opposed to it, and insisting on the necessity of compromising sectional interests for the general good.

We recommend a policy for self-preservation; exhorting each state opposed to the tariff policy, to ward off its effects, by living as far as possible within itself.

We recommend a continued and strenuous exertion to defeat that general pernicious, and unconstitutional policy, contemplated and pursued by the advocates of the tariff.

Such means may restore federal legislation to the standard of constitutional correctness. Times, occasions and provocations, by their proper lessons and expedients. Future measures will be dictated by expediency; the nature and tendency of injury will point out the mode and measure of future resistance.

Therefore resolved, That copies of this memorial be signed by the President of the Senate, the speaker of the House of Representatives, and by his excellency the Governor, and that one be transmitted by his excellency to each state of the Union opposed to the tariff act of first session of the twentieth Congress.

IRBY HUDSON, *Speaker*

*of the House of Representatives.*

Witness—WM. C. DAWSON, *Clerk.*

THOMAS STOCKS,

*President of the Senate.*

Witness—WM. Y. HANSELL, *Secretary.*

Witness, Dec. 20, 1828.

JOHN FORSYTH, *Governor.*

IN THE SENATE, FEBRUARY 19, 1829.

The Speaker laid before the Senate the following communication from the board of commissioners of the internal improvement fund, which was read and laid on the table.

*To the Senate and House of Representatives of the Commonwealth of Pennsylvania.*

GENTLEMEN,

In obedience to the act of the General Assembly, passed the first day of April, 1826, entitled "An Act establishing an internal improvement fund." The commissioners of said fund

#### REPORT:

That the accompanying statement, exhibits the state of the fund from the sixth day of February, 1828, to the seventh day of February, 1829, inclusive; by which statement it appears that after paying all sums directed by law to be paid out of the internal improvement fund, there remained on the seventh day of February, 1829, a balance of twenty-six thousand seven hundred and forty-four dollars and nineteen cents.

It also appears by the accompanying estimate, of the probable receipts and expenditures during the current year, that there will be a deficiency of money belonging to the fund on the first day of February, 1830, to meet the payment of interest due on that day on loans, of fifty-three thousand eight hundred and eighty dollars. Agreeably to the estimate made by the Auditor General of the probable receipts and expenditures, at the treasury of the commonwealth, from first December, 1828, to the thirtieth November, 1829, under existing laws, there will be a balance in the State Treasury on the thirtieth November, 1829, of one hundred and forty-five thousand six hundred and fifteen dollars and forty-six cents. Should the legislature direct the transfer, from the balance in the treasury on the 30th November next, to the internal improvement fund, of a sum sufficient to make up the estimated deficiency in that fund on the first day of February next, there would still remain in the treasury a sufficiency of money to meet the demands upon it under existing laws.

All of which is respectfully submitted.

C. BLYTHE,  
DAVID MANN,  
ALEX'R MAHON.

*February 18th, 1829.*

*STATEMENT of the receipts and payments by the Commissioners of the internal improvement fund, from the 6th day of February, 1828, to the 7th day of February, 1829, inclusive.*

DR.

To amount received from the State Treasurer, for the construction of the Pennsylvania canal, per act of the 24th March, 1828,

\$,000,000 00



To amount received from do. the proceeds of the temporary loan, per act of 14th April, 1828,	490,000 00	
To amount received from do. advanced out of the State Treasury, on the 17th and 30th April, 1828, per 14th section of the act of 24th March, 1828,	150,000 00	
To amount received from do. the proceeds of the temporary loan, per act of 18th December 1828,	225,000 00	
To amount received from do. part of the permanent loan, per act of 18th December, 1828,	342,166 67	
To amount received from do. advanced out of the State Treasury on the 20th December, 1828, and the 12th and 16th January, 1829, per 3d section of the act of 18th December, 1828,	200,000 00	
	<hr/>	3,407,166 67
To amount received from escheats,	101 45	
Collateral inheritances,	5,993 41	
Dividends on bridge and turnpike stock	17,965 00	
Auction duties,	80,000 00	
To amount transferred into the fund, being the sum paid engineers and the secretary of the board of canal commissioners, per act of 16th April, 1827, and refunded per act of 24th March, 1828,	5,990 00	
To which add balance in the fund on the 6th February, 1828.	26,859 24	136,909 10
		<hr/>
		\$3,544,075 77

## CR.

By amount paid to the treasurer of the board of canal commissioners, per act of the 14th March, 1828,	2,000,000 00
By amount repaid to the several banks which advanced the temporary loan, per act of the 14th April, 1828,	490,000 00
By amount repaid into the State Treasury, per act of the 24th March, 1828,	150,000 00
By amount paid to the treasurer of the board of canal commissioners, per act of the 18th December, 1828,	567,166 67

By amount paid to do. advanced out  
of the State Treasury, per act of  
18th December, 1828,

200,000 00

3,407,186 67

1828, July 12, paid interest on the  
temporary loan, per act of 14th  
April, 1828,

3,584 09

1828, August 1, paid interest on loan  
of 1826,

7,500 00

Loan of 1827,

25,000 00

Loan of 1828,

2,627 78

Paid Alonzo Livermore, engineer of  
the western division Pennsylvania  
canal, one quarter's salary,

365 00

1829, Feb. 2, paid interest on loan of  
1826,

7,500 00

Loan of 1827,

25,000 00

Loan of 1828,

38,588 04

To which add balance in the fund on  
the 7th February, 1829,

26,744 19— 136,909 10

\$3,544,075 77

*ESTIMATE of the probable receipts and payments by the com-  
missioners of the internal improvement fund, from 7th February,  
1829, to 1st February, 1830.*

## DR.

Premiums on loans of 1826 and 1827,

58,375 00

Auction duties,

80,000 00

Dividends on bridge and turnpike stock,

20,000 00

Collateral inheritances,

15,000 00

Eachests,

500 00

To which add balance in the fund, 7th February, 1829,

26,744 19

Probable deficiency of the fund, February 1st, 1830,

53,880 81

\$254,500 00

## CR.

Interest on loan of 1826,

15,000 00

do loan of 1827,

50,000 00

do loan of 24th March, 1828,

100,000 00

do loan of 18th December, 1828,

37,000 00

do temporary loan of do

4,500 00

do loan for 1829,

48,000 00

\$254,500 00

IN THE SENATE, FEBRUARY 19, 1829.

The Speaker laid before the Senate the following communication from the managers of the House of Refuge:

*Philadelphia, February 21, 1829.*

SIR,

I have the honor to transmit to you the report of the board of managers of the House of Refuge, and request that you will lay the same before the Senate.

I am, very respectfully,  
Your obedient servant,

JAMES J. BARCLAY, *Secretary*  
*of the House of Refuge.*

HON. DANIEL STURGEON,  
*Speaker of the Senate.*

*To the Senate and House of Representatives of the commonwealth of Pennsylvania. in general assembly met.*

Although the House of Refuge has been opened but a short time for the reception and confinement of youthful offenders, the board of managers, nevertheless, deem it their duty to impart to the legislature, such information as it is in their power, at this time to communicate in relation to that institution, sensible that your enlightened bodies will, at all times, cordially unite in the good wishes of the board, for the complete success of an institution, in which the whole community is so deeply interested, and which in prospect under the smiles of an over-ruling providence, promises to realize in its results the enlargement of virtuous society, and the protection of property and life.

The completion of the buildings, providing furniture and various other articles, indispensable in conducting the House of Refuge, together with various causes not under the control of the board, retarded its operations beyond the period calculated on in the report of the board to the legislature of the 17th of January, 1828. The board, however, has the satisfaction to state now, that on the first of December last, on public notice previously given, the establishment was opened for the reception of such subjects as the law contemplates for instruction and reformation, under the management and discipline of the board of managers; and from the 8th December last, to the 13th inst. there have been committed and received into the institution, nineteen males and five females, between the ages of ten and nineteen years, making together twenty four subjects, who at present all enjoy a good state of health and are serviceably employed.

The different trades and occupations at present introduced in the male department of the House of Refuge, and in which the inmates are respectively employed, are the following, to wit, shoe-making, book binding and basket making. The female depart-

ment, is as yet occupied under the immediate direction of the matron and her assistant, in housewifery, sewing, &c. The board however, contemplates introducing such additional handicrafts for both departments, as may be suitable for the different sexes respectively.

Notwithstanding the short time this institution has been in operation, the experience gained by the managers has increased their hopes and given them additional encouragement to prosecute their objects and intentions with unremitting zeal and devotion, under a conviction that with proper attention, tempered with prudence and discretion, many of the erring subjects, committed to the instruction, improvement and discipline of the institution, will by its instrumentality be restored to a virtuous life and become useful members of the community. This communication is accompanied by a printed copy of the rules and regulations, &c. by which the institution is governed at present. No doubt some amendments and further improvements will be made in them from time to time, as the exigencies of the establishment may require. It does not appear necessary to the board in this communication, to give a description of the buildings thus far completed, as the board in their communication of the 17th of January, 1828, to both houses, gave a detailed account of all the buildings then in a progressive state, no additional building having been since made to those which were then enumerated.

The following presents a view of the receipts and expenditures of the board of managers to the first of October, 1828; the amount wanted to complete the buildings, and prepare accommodations for twenty-five boys and ten girls, and also the probable amount of debt calculated to the first day of January instant.

Amount of receipts from different sources to 1st Oct. last		\$42,364 76
Of which the institution has received in		
private contributions	\$12,585 27	
From the commonwealth	10,000	
County of Philadelphia,	10,000	
Loans from thirteen individuals	6,500	
Pennsylvania society for the promotion of		
public economy, secured by mortgage on		
the real estate,	3,000	
Sales of materials & interest on money loaned	279 49	
		<hr/> 42,364 76

Amount of expenditures to the same time, viz.

Lot ground	5,500	
Buildings and wall as far as completed	35,800	
Miscellaneous expenses, including interest		
on money borrowed, insurance, &c.	989 28	
		<hr/> 42,289 28

Which left a balance in the hands of the treasurer on the first day of October last of \$ 75 53.

To complete the buildings and prepare accommodations for twenty five boys and ten girls, calculated on to the 1st January, the present year \$1,600

Salaries of officers and maintenance of subjects to that time. 600

Add present debt of the association, to wit:

Loans from individuals 6,500

do Society for the promotion of public economy 3,000

— 9,500

\$11,700

The board of managers are at present employing their utmost exertions in making provision for the extinguishment of this debt, and have now (for the third time) resorted to soliciting private contributions. And, however unpleasant the task may be, thus repeatedly to put the liberality of their fellow-citizens in requisition, the board (satisfied that among the numerous charities with which our city abounds, none has a higher claim on its liberality than this institution) deem it their duty to make every effort towards the discharge of the incurred debt, in the confident hope that after their exertions are exhausted, the constituted authorities will not suffer an institution to languish for the want of necessary provision, to enable the board of managers to realise its benevolent object and design—the diminution of crime, the improvement and reformation of the ignorant and depraved.

All which is respectfully submitted,

By order of the board of managers,

ROBERTS VAUX, *Vice President.*

Attested,

JAMES J. BARCLAY, *Sec'y of the House of Refuge.*

*Philadelphia, January 22d, 1829.*

IN THE SENATE, FEBRUARY, 25, 1829.

The Secretary of the Commonwealth being introduced, presented a message, accompanied with documents, which were read. The documents from the state of New Jersey were referred to the committee on roads, bridges and inland navigation, and the others laid on the table.

*To the Senate and House of Representatives of the Commonwealth of Pennsylvania.*

GENTLEMEN—

I have the honor of transmitting to you a copy of a letter from the governor of the state of Kentucky, together with a copy of certain resolutions of the legislature of that state, respecting the Cumberland hospital establishment, on the Ohio river, at the mouth of Cumberland river.

I also have the honor to transmit to you a copy of a letter from the governor of the state of New Jersey, together with a copy of an act of the legislature of that state, for effecting an arrangement between the two states of New Jersey and Pennsylvania, for the mutual use of the waters of the river Delaware, for canals and other purposes.

J. ANDW. SHULZE.

*Harrisburg, February 24, 1829.*

*Frankfort, Kentucky, 5th February, 1829.*

*His Excellency  
the Governor of Pennsylvania.*

SIR—I have the honor to transmit to you the enclosed resolutions, and respectfully to request your attention to the objects therein contemplated.

I am very respectfully,  
Your obedient servant,

THOMAS METCALFE.

*Resolutions in relation to the Cumberland Hospital.*

The select committee to whom was referred the memorial of the trustees of the Cumberland hospital, has had the same under consideration, and report thereon:

That the state of Kentucky, under an impression that a hospital located at Smithland, which is situated on the Ohio, at the mouth of the Cumberland river, was an establishment which the wisdom, the policy and humanity of the states bordering on the Ohio river required, appropriated four thousand dollars towards the erection of comfortable buildings at that place, which sum has been prudent-

ly and judiciously expended: that a large and commodious brick house has been completed and prepared for the reception of the sick, divided off into a number of well constructed and convenient rooms: that a kitchen and all other necessary buildings have been erected, and every thing in a perfect state for the reception of the sick water-men, who may be placed in said hospital. A regular bred physician has been procured to attend, and nurses to wait on and administer to the comforts of the patients.

These arrangements were all completed last fall, and every attention, from that time to the present, paid those who were in the hospital, and all restored to health and thrown back upon society. The committee would here remark, that not one patient who has been in the hospital was a resident of Kentucky, but citizens of other states. The committee, upon examining into the state of the funds of said hospital, find that they are all nearly expended, and the continuance of the successful operations of the establishment must depend upon the aid to be afforded by the government of the United States, out of the marine hospital fund, and the contributions of the states bordering on the Ohio; because all the states on the Ohio are equally interested in having the sick water men provided for; and although the same is situated in Kentucky, her citizens are not more deeply interested in it than those of the states of Tennessee, Illinois, Indiana, Ohio, Virginia and Pennsylvania; besides, it is to be borne in mind, that Kentucky has erected all the buildings, and independent of that fact, has expended upwards of forty thousand dollars in erecting a hospital at the city of Louisville, and now, by her own means, keeps it in operation, and receives into it the sick water-men from every part of the world.

The committee feel persuaded, that an appeal to congress and the states, will not be made in vain, for aid to keep up and sustain said institution. The committee submit the following resolutions:

*Resolved by the General Assembly of the Commonwealth of Kentucky,* That our members in congress be requested to use their best efforts to obtain a contribution out of the Marine hospital fund, to be appropriated towards defraying the annual expenses of the Cumberland hospital; and as additional means for its support, to authorise the state of Kentucky to collect a toll on the commerce of the river, when the same shall land at Smithland.

*Resolved,* That the Governor of this state be requested to transmit copies of this report and resolutions to the Governors of the states of Pennsylvania, Virginia, Tennessee, Ohio, Indiana and Illinois, and respectfully request the attention of those states to the objects contemplated in this report.

*Approved, January 29th, 1829.*

## EXECUTIVE DEPARTMENT,

*Trenton, February 20, 1829.*

SIR,—

I have the honor to transmit to your excellency, an authentic copy of an act of the legislature of the state of New Jersey, for effecting an arrangement between the states of New Jersey and Pennsylvania, for the mutual use of the waters of the river Delaware, for canals and other purposes, and to request that your excellency will be pleased to submit the same to the legislature of Pennsylvania at their present session.

Should the legislature of Pennsylvania pass an act for the appointment of commissioners on the part of that state, I will immediately, on being informed thereof, appoint commissioners on the part of the state of New Jersey.

I have the honor to be,

With great consideration and respect;

Your obedient servant;

J. H. WILLIAMSON.

His Excellency the Governor of Pennsylvania.

## STATE OF NEW JERSEY:

**AN ACT** for the purpose of effecting an arrangement between the states of New Jersey and Pennsylvania, for the mutual use of the waters of the river Delaware for canals and for other purposes.

**WHEREAS,** It is believed that the waters of the river Delaware may, by a proper, just, and equal arrangement between the two states, be used for feeding canals and creating water powers, to the great and lasting advantage of both; to these ends, therefore,

1. *Be it enacted by the council and general assembly of this state, and it is hereby enacted by the authority of the same,* That the governor of this state be authorised to appoint three commissioners, who shall be entitled to a reasonable compensation, with full powers on the part of New Jersey, to meet commissioners, that may be appointed by the state of Pennsylvania, with like full power on the part of that state; and in conjunction with them to employ competent engineers, and take all necessary measures to ascertain and determine how, in what manner and at what places the waters of the Delaware may be most advantageously taken for the purposes aforesaid, and to make and conclude an agreement respecting the same, between the said states; taking care in such agreement to guard from injury, in the best manner, the shad fisheries and navigation of the said river; and their agreement in the premises, signed and sealed by the said commissioners, or a ma-



majority of them, when ratified and confirmed by the legislature of the states of New Jersey and Pennsylvania, respectively, and the consent of congress thereto, shall be obtained, shall be binding and conclusive on both states.

2. *And be it enacted*, That the said commissioners shall meet at such times and places, as they may agree upon; and if by death, resignation or otherwise, a vacancy should happen among those appointed on behalf of this state, the Governor, or person administering the government, is hereby authorised to supply said vacancy, or vacancies, and to draw from the treasury of this state, such sum or sums of money as may be necessary for defraying the expenses of said commissioners.

3. *And be it enacted*, That the Governor of this state, do transmit to the Governor of Pennsylvania, a copy of this act, duly authenticated, with a request that he will submit the same to the legislature of Pennsylvania, at their present session.

*Council Chamber, February 18, 1829.*

This re-engrossed bill, having been read and compared in the Council,

*Resolved*, That the same do pass.

By order of the Council,

J. H. WILLIAMSON, *Pres't.*

*House of Assembly, February 18, 1829.*

This re-engrossed bill, having been read and compared in the House,

*Resolved*, That the same do pass.

By order of the House,

W. B. EWING, *Speaker.*

#### SECRETARY'S OFFICE.

*Trenton, February 19th, 1829.*

I, Daniel Coleman, Secretary of the State of New Jersey, do certify that the foregoing is a true transcript of a law, passed February 18, 1829, taken from the original now on file in my office.

Given under my hand and seal of office, at the city of Trenton, the day and year last above said,

DANIEL COLEMAN.

IN THE SENATE. MARCH 16 1829.

The Secretary of the Commonwealth being introduced, presented a message from the Governor, accompanied with documents, which were read as follows, viz.

*To the Senate of the commonwealth of Pennsylvania.*

GENTLEMEN,

I am requested by the governor of the state of Virginia, to lay before the legislature of this state the proceedings of the legislature of that state, in relation to certain proceedings of the legislatures of South Carolina and Georgia, upon the subject of the tariff acts, the acts for internal improvements, &c. I also transmit a copy of the governor's letter, being but one copy is for the use of both Houses.

J. ANDW. SHULZE.

*Harrisburg, March 16, 1829.*

EXECUTIVE DEPARTMENT,

*Richmond, February 28, 1829.*

SIR.—In compliance with the request of the General Assembly of Virginia. I now do myself the honor of transmitting to your Excellency copies of their proceedings, in relation to certain proceedings of the respective legislatures of South Carolina and Georgia, upon the subject of the tariff acts, the acts for internal improvements, &c. heretofore passed by Congress; which were submitted to the consideration of the General Assembly during the present session, upon the request of those legislatures respectively; and most respectfully of asking you, sir, to cause the same to be laid before the legislature of Pennsylvania.

I am, sir, very respectfully,

Your obedient servant,

WM. B. GILES.

TO HIS EXCELLENCY,

*The Governor of Pennsylvania,*

*Report of the select committee on the resolutions of Georgia and South Carolina.*

The select committee to whom were referred the communication of the governor, transmitting the proceedings of the legislature of Georgia, in relation to resolutions from the states of South Carolina and Ohio, and the proceedings of the state of South Carolina on the subjects of the tariff and internal improvements, have bestowed on those subjects their most profound consideration.

Having subjected the preambles and resolutions to strict examination and severe criticism, they find the annunciations and results to be mainly sustainable, so far as they pertain to the acts of

Congress, usually denominated the tariff laws, and thus designated in those several proceedings.

The proceedings of the legislature of the state of Georgia, as well as those on which they are founded, emanating from the legislature of South Carolina, announce and sustain the opinions of Virginia, heretofore proclaimed by successive legislatures; opinions which rest on truth and reason; which your committee can discern no cause to relinquish, but which they are ready to defend and sustain, as involving the most essential interests of the commonwealth.

Respect for the dignity and character of Virginia, and an anxious regard for the tranquillity of the Union, admonish your committee to withhold such remarks as might be suggested by the consciousness of oppression: such remarks could have no other tendency than to excite hostile emotions, ill adapted to the grave consideration of the momentous question which they are deputed to examine. Your committee will, therefore, proceed with calmness and temperance, to examine the opinion heretofore expressed by preceding legislatures of this state, that the several acts of Congress, passed avowedly for the protection of domestic manufactures, are manifest infractions of the federal constitution, and dangerous violations of the sovereignty of the states.

The government of the United States has ever been regarded by the sovereignty of Virginia, as federative in character, and limited in power; as deriving its powers from concessions by the states, which concessions were clear and explicit, plainly declarative of all which was delegated, and actually containing a specific enumeration of every power designed to be transferred. The purposes for which these powers may be exerted, have been regarded as distinctly defined, and it was considered that the government was prohibited, alike from the exercise of any power not contained in the specific enumeration, as from the perversion of those actually delegated, to any purpose not contemplated in the grant. The convention which, on the part of Virginia, ratified the constitution of the United States, gave this interpretation to the instrument. Its advocates then urged its adoption, as constituting such a government as is here described. It was insisted, on many occasions, that the powers of the government were expressly enumerated, and that none others could be claimed. It was insisted, with equal earnestness, that the purposes for which these powers might be exerted were as distinctly ascertained, and that they could not be perverted to any other object. The ablest and most zealous advocates of the constitution insisted, that such was its just construction, even according to the terms of the original text; and it must be acknowledged that this construction is strengthened, by the subsequent adoption of amendments to the constitution. Those who opposed the ratification of the constitution, founded their objection on a supposed absence of limitation, according to the plan originally submitted; and proposed, as an expedient to remedy this defect, the amendments which were

subsequently adopted. A majority, however, of the convention, determined on the ratification of the original text, explained and defined by its advocates, as organising a government with limited powers, specifically enumerated, and restrained in the exercise of those powers, to the attainment of specific ends. An anxious solicitude to establish indisputably this construction, induced the recommendation of those amendments which have since been engrafted on the constitution, establishing this construction, even in the opinion of those who opposed the adoption of the constitution.

This being the sense in which the constitution of the United States was originally accepted, your committee have anxiously examined the record of succeeding time, to discover if any thing has since occurred, calculated to change the import of the instrument; and after the most patient examination, they confidently report, that nothing has transpired which could in any manner modify its just construction. If, at any succeeding period, attempts have been made to pervert the import of the original compact, Virginia has ever been prompt to avow her unqualified disapprobation, and manifest her undisguised discontent. The imperishable history of '93 has perpetuated the memory of her laudable zeal, in sustaining the true principles of the constitution; in maintaining the sovereign rights of the states; in successfully resisting the lawless usurpations of a government bent on the acquisition of boundless power. The deliberations of the legislature of this commonwealth, during the period of '98 and '99, in relation to the construction of the constitution, by a felicitous combination of circumstances, resulted in a just and luminous exposition of the true principles of the federal compact. This expose clearly ascertained the just limitations of federal power, and happily pointed out to future generations the just rule of interpreting the instrument. The construction then placed on the constitution, was submitted to the decision of the most august of all tribunals, and sustained by the judgment of United America.

The history of Virginia discloses several occasions, on which the constitution was brought in review, and the committee have found that on every occasion where the question was involved, the former legislatures of this commonwealth have insisted on a limited construction of the instrument. Sustained by the concurrence of our predecessors, from the earliest history of the constitution, your committee find but little difficulty in determining the government of the United States to be federative in its character, and limited in its powers: that the powers vested in the government are conveyed in an express enumeration: that no power can be constitutionally exercised, which is not contained in that enumeration: that the purposes for which the government was instituted, are explained in the instrument; and that the powers specified in the enumeration cannot be legitimately exerted, for any purpose not designated by the constitution.

Regarding these propositions as true, it seems to your committee, that to determine on the constitutionality of laws, passed for the protection of American manufactures, it can only be necessary to examine the enumeration of grants. If the power be there expressly delegated, then, indeed, the question ends. If, on the contrary, no such power be there expressly conveyed, we must recur to further reflection.

In examining this enumeration of grants, your committee have not been able to discover any such express delegation, authorising the protection of American manufactures, by means of prohibitory or protecting duties. They find, however, a clause in the constitution, empowering Congress "to promote the progress of science and the useful arts, by securing for limited times, to authors and inventors the exclusive right to their respective writings and discoveries." On a critical examination of this clause, it will be found to bear with much force on the question, whether or not Congress have the right to advance the manufacturing interest of America, by the imposition of prohibitory or protecting duties? The ends which the government may attempt, are plainly ascertained by the terms of the compact. The means which may be legitimately exerted, for the accomplishment of these ends, are as plainly determined and described. The phrase *useful art*, it will be conceded, embraces and describes the manufacturing art, and it is deemed competent for Congress to promote its progress, by securing for a time, to any fortunate or scientific artificer, the exclusive use of all his discoveries. The interest, then, of the manufacturing art may be promoted after the manner indicated in this clause; but the suggestion of this particular mode operates as an exclusion of all other modes, and it seems to follow as a natural consequence, that the manufacturing interest may not be promoted by the imposition of prohibitory or protecting duties.

The proceedings which were had in the federal convention, confirms this construction of this clause. The plan of government finally adopted, was submitted to the consideration of the convention on the 29th May, 1787, by an honorable member from the state of South Carolina. No such clause as the one now under consideration, was contained in the original draft, nor was any such engrafted on that draft, by the select committee, to whose examination the plan was subjected. On the 18th day of August, succeeding, it was proposed to consider the propriety of conferring on the government additional powers; and among others, the following were suggested for reflection:

To give to Congress the power "to secure to literary authors, their copy rights for a limited time."

"To encourage, by proper *premiums* and *provisions*, the advancement of useful knowledge and discoveries."

"To grant patents for useful inventions."

"To establish public institutions, rewards and immunities, for the promotion of agriculture, commerce, trades and manufactures"

These propositions were referred to a select committee, who, after mature reflection, reported on the 5th of September following, the clause as it now stands in the body of the constitution: investing Congress with the power "to promote the progress of science and the *useful arts*, by securing for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries." It became the duty of that committee, in the examination of the subjects to them referred, to inquire into the expediency of investing Congress with powers "*for the promotion*" of "*manufactures*." In the event that they should find it expedient, it became their duty further to ascertain the "proper premiums and provisions" over which congress should be invested with power; what "public institutions, rewards and immunities" Congress should be authorised to "establish" "*for the promotion of agriculture, commerce, trades and manufactures*:" and after due deliberation, occupying the attention of the committee from the 18th of August to the 5th of September, it was determined that the only provision which should be made was contained in the clause which at present occupies our attention. Thus, actually rejecting the propositions which were referred, and negatively declaring their intention, that Congress should have no other power "to promote the progress" of "*manufactures*," than that of "securing for limited times" "to inventors, the exclusive right to their respective" "*discoveries*." This report was sustained by the convention, who thereby afforded unequivocal evidence of their will and design, in relation to the subject of domestic manufactures. Manufactures had become the subject of their thoughts. They gravely deliberated on the powers necessary to be vested in the government, for the promotion of the manufacturing art, and after consultation of seventeen days, solemnly determined that the only power over the subject, which it was wise to confer on the government, was, that of securing temporarily to inventors, any exclusive advantages which might result from their discoveries. Your committee cannot but regard these occurrences as a virtual, if not an actual rejection of the proposition to invest Congress with any other powers, for the promotion of manufactures. And they are, therefore, the more confirmed in their conviction, that manufactures cannot be legitimately promoted, by the imposition of prohibitory, or protecting duties.

Your committee would not rest assured of a faithful discharge of the important duties which devolve upon them, were they to withhold all comment on such clauses of the constitution, as have been claimed to convey to Congress the right to protect domestic manufactures. The 8th section of 1st article, has been relied on as conveying that right. This section provides, that "Congress shall have power to lay and collect taxes, duties, imposts, and excises, to pay the debts, and provide for the common defence and general welfare of the United States; but all duties, imposts, and excises shall be uniform throughout the United States." It is insisted by the advocates of protecting duties, that Congress is invested by

this clause, with unqualified power over the subject of duties and imposts; which may be well exerted for the advancement or advantage of the American manufacturer; but this proposition appears to your committee to be entirely unsustainable. So far from conveying to the government of the United States, unqualified power over the subject of duties and imposts, that government is restrained in the exercise of its power over the subject, to the accomplishment of objects, enumerated in the very clause itself. The words "to pay the debts, and provide for the common defence and general welfare of the United States," are ascertained by the plainest rules of grammatical construction, to be a limitation on the preceding member of the sentence, restraining Congress in the exercise of the power "to lay and collect taxes, duties, imposts, and excises," to the objects of paying the debts, and providing for the common defence and general welfare of the United States. If this be true, the section contains an express enumeration of all the purposes for which the power may be exerted. The care and attention of American manufactures, are not embraced within this enumeration: and it would seem to your committee necessarily to follow, that the power conveyed by the section, cannot be exerted for the protection or promotion of American manufactures.

It would be uncandid in your committee to elude or evade the examination of the question, whether or not the words "to pay the debts, and provide for the common defence and general welfare of the United States," convey to Congress distinct and substantive grants of power. The affirmative of this proposition has been maintained by the advocates of protecting duties; but, your committee confess, that after the most mature deliberation, they have not been able to arrive at a similar conclusion. The collocation of the words excludes the idea of such a construction. They are inserted after the terms "duties and imposts," and are immediately succeeded by the words "but all duties, imposts and excises, shall be uniform throughout the United States." This concluding member of the section proves, that the attention of its framers had not been diverted from their primary subject. They had not introduced another subject, but were engaged in modifying, restraining, or regulating the power over the subject first introduced. Their provisions were to have reference to it; there was nothing else on which they could attach, and the words "to pay the debts, and provide for the common defence and general welfare of the United States," could no otherwise affect the power "to lay and collect taxes, duties, imposts and excises" than as creating a limitation, restraining Congress in its exercise, to the raising of money for the purpose of paying the debts and providing for the common defence and general welfare of the United States. Had the convention designed these words as conveying any substantive grant, they would have been separated by more distinct marks of punctuation. They would have been thrown into a separate sentence. This was done in every other instance,

All other subjects of grants of power have been treated of in sentences. The grants and provisions on each subject, are perfected and concluded before the introduction of another subject; and it would seem to your committee to be unaccountable, if in this particular instance the convention had introduced a distinct grant between the clause which relates to the raising of money, and an acknowledged limitation on that clause. To construe the words as containing a substantive grant of power, is to convict the framers of the constitution of the gross impropriety of interpolating one substantive grant between another substantive grant and its acknowledged limitation. If these words, "to pay the debts, and provide for the common defence and general welfare of the United States," were designed as a limitation on the first member of the sentence, the collocation cannot be improved. They follow immediately the words which they were intended to qualify, and have a natural and obvious connexion with them.

If, on the contrary, they be designed to impart additional energies to the government, the convention are convicted of this confused interpolation, when by a natural transposition of the members of the sentence, the design would have been clear. The difficulty would have been rendered less, had the section been constructed thus: Congress shall have power:

To lay and collect taxes, duties, imposts and excises; but all duties, imposts and excises, shall be uniform throughout the United States.

Congress shall have power to pay the debts, and provide for the common defence and general welfare of the United States.

Had this subject been thus arranged, it would have strengthened the argument for protecting duties; but, as the members of the sentence are at present disposed, to construe the words "to pay the debts, and provide for the common defence and general welfare of the United States," as conveying substantive grants, is to convict the framers of the constitution of disjoining the limitation, "but all duties, imposts and excises, shall be uniform throughout the United States," from the power "to lay and collect taxes, duties, imposts and excises," which it was designed to limit, and of appending it to the power "to pay the debts, and provide for the common defence and general welfare of the United States," which it was not designed to affect at all. But the convention is relieved from the imputation of these inaccuracies of composition, by giving to their proceedings their rational explication, that the latter members of the sentence were designed as limitations on the power to raise money: The one declarative of the purposes for which it might be raised, the other prescribing that it should not be raised in unequal proportions on the several sections of the Union.

If this conviction wanted confirmation, it would be found in the history of the section, as it was originally introduced to the consideration of the convention. It contained unlimited authority over the subject of taxes, duties, imposts and excises. It was



submitted in these words: "The Legislature of the United States shall have power to lay and collect taxes, duties, imposts and excises." In this form it was referred to a select committee, who reported it without amendment or appendage. On the 16th of August, it was proposed to insert at the end of the section: "*Provided*, That no tax, duty or imposition, shall be laid by the legislature of the United States, on articles exported from any state." The consideration was postponed, and the subject referred. Six days afterwards, the committee reported the section with amendments, so as to make it stand: "The legislature of the United States shall have power to lay and collect taxes, duties, imposts and excises, *for payment* of the debts and necessary expenses of the United States, provided that no law for raising any branch of revenue, except what may be specially appropriated for the payments of interest on debts or loans, shall continue in force for more than years." Your committee here discover the origin of the clause which relates to the payment of the debts, and the provision for the common defence and general welfare of the United States. Under the terms in which it was introduced, no doubt can exist as to its object. It was a manifest limitation on the preceding member. The power to raise money had been granted without limitation, and the amendment restrained its exercise to the raising of money "*for payment* of the debts and necessary expenses of the United States," with the addition of a proviso containing even a further limitation. On the 23d of August, it was moved to amend this section so as to make it "the legislature shall fulfil the engagements, and discharge the debts of the United States, and shall have power to lay and collect taxes, duties, imposts and excises." This motion prevailed, but was re-considered on the ensuing day, and the subject re-committed. On the 31st of August, it was agreed that "duties, imposts and excises, laid by the legislature, shall be uniform throughout the United States." On the fourth of September the committee fully and finally reported the section, in these words, thus punctuated: "The legislature shall have power to lay and collect taxes, duties, imposts and excises, to pay the debts and provide for the common defence and general welfare of the United States." It does not appear from the journal of the convention, that this part of the section ever again came under consideration, after the confirmation of this report; except that perhaps, on the 14th of September, it received as an amendment the addition of these words: "but all duties, imposts and excises, shall be uniform throughout the United States." A committee of five members was appointed "to revise the style of, and arrange the articles agreed to by the House." This committee was invested with no power to adopt any amendment affecting in any manner the import of the sentence, and whatever modification it subsequently experienced, was adopted from a regard to propriety of arrangement, and accuracy of style. It is obvious from this plain relation, that the original design in introducing this member of the sentence,

was the creation of a limitation on the power to raise money, prohibiting the exertion of that power, except "for payment of the debts and necessary expenses of the United States." This limitation was had constantly in view, and whatever modifications the language experienced, were adopted from a regard to the propriety of style.

Various and numerous are the reflections which have suggested themselves to your committee, demonstrating the truth of the proposition, that Congress cannot legitimately "lay and collect taxes, duties, imposts and excises," to advance the interest of the American manufacturer. It will not be contended, that Congress have power to impose and collect taxes or excises, to confer gratuities on any favored portion of the community; none would contend for such a power, and for the honor of the American people, it is hoped that few would submit to its practical operation; but the power of Congress over duties and imposts, is not more ample than that over taxes and excises. The power over all is precisely the same; conferred by the very same section of the constitution; by the use of the very same terms; under precisely the same limitations. Any object which may be accomplished or attempted, by the exertion of the power, to lay and collect duties and imposts, may be as constitutionally accomplished or attempted, by the exertion of the power, to lay and collect taxes or excises. The selection from among these various means, is left to the wisdom and discretion of Congress. The propriety of selecting the one or the other, must be resolved into a question of expediency, and on occasions where Congress may not select at discretion, it has no power to select at all. If then taxes and excises may not be legitimately imposed, to confer gratuities on the favorites of government, it would seem to your committee to be difficult to demonstrate the competency of the government to lay and collect duties and imposts, to further the interest of the American manufacturer, who, far from rendering any equivalent for the advantage which he derives from the operation of the tariff, occasions a great and incalculable loss to the treasury.

Acting under the influence of these reflections, your committee are constrained to adopt the opinion, that there is nothing in this section, which confers on Congress, the right to foster domestic manufactures, by the imposition of prohibitory or protecting duties.

This right has been claimed for the government, under the clause which gives to Congress the power "to regulate commerce with foreign nations, and among the several states, and with the Indian tribes." But it seems to your committee, that the authority to regulate commerce, involves no power over domestic manufactures. The phrases are entirely dissimilar, and cannot be construed as synonymous. Each is a distinct, determinate subject, and they cannot possibly be identified. Commerce being the interchange of commodities, implies the exchange of one thing for another, between different individuals or nations. Domestic manufactures are local establishments, founded for the production of

commodities, and the phrase implies no *exchange* at all. The term *commerce* associates a general idea of *trade*. The term *manufactures* associates the idea of fixed, permanent, local foundations. Commerce supplies to the American citizen, in return for the product of his labour, the varied products of distant climes. Manufactures convert his raw material into fabriicks for consumption. Sophistry itself cannot identify things thus substantive and distinct; nor render synonymous, the terms or phrases by which they are represented. Yet the argument which derives the power to protect domestic manufactures from the power to regulate commerce, do indeed identify the subjects, and render the terms substantially synonymous.

The power, too, to regulate commerce, was granted with a view to its perfection. Independent of the consideration of revenue, it was delegated to secure the most advantageous arrangements in foreign trade, and to ensure domestic tranquillity, by extinguishing all subjects of cavil among the states, originating in particular conflicting legislation. But the policy of the protecting duty system, is by no means the advancement of commercial interest. Its object is to extinguish foreign trade; whilst it surely disturbs domestic tranquillity, by furnishing a subject of loud and heavy complaint, of severe and angry recrimination. To derive, then, the right to protect domestic manufactures, from the power to regulate commerce, would be to pervert the design of the framers of the constitution, defeat the ends of the instrument itself, and to establish the paradoxical proposition, that it is the same thing to perfect and to destroy.

Having concluded this minute examination of the several clauses of the constitution, which were supposed to refer to the subject of protecting duties, or which have been claimed to have such reference, your committee find themselves occupying a position whence they may proceed with greater advantage to the contemplation of this momentous subject. The great design of the federal compact, as conceived by the wisdom of its illustrious authors, was the establishment of a government competent to combine the energies of the several states, for the purposes of mutual and reciprocal safety and protection against foreign insult and aggression: a government, adequate to secure the harmony and tranquillity of America, by extirminating all subjects of feud, and interposing its friendly and impartial adjudication, on occasion of cavil or dispute among the states. Experience had shown to our sagacious statesmen, that these were subjects of a general concern, in which the states held a common interest; the advantages of which were mainly sacrificed, by the particular, conflicting legislation of the states. The jurisdiction over these, it was obviously proper to vest in some common tribunal, having authority to legislate for the general weal, and in relation to these subjects, to secure the greatest possible advantages to the common family of American states. The difficulty and delicacy of erecting such a tribunal, with powers adequate to these ends, yet so constructed as to en-

ture the perpetual independence of the states, with unimpaired authority over all other subjects, forcibly suggested itself to the sagacity of those who then controlled the destinies of America. They despaired of this vast achievement, by the efforts and under the sanctions of individual man, and wisely determined to bring to its accomplishment the energies and sanctions of independent sovereignties.

Your committee will not impose on themselves the labor of compiling an historical sketch of the transactions which induced the foundation of the federal government. This history, it is presumed, is familiar to all. In conformity with arrangements previously understood, the distinct and independent states of America assembled in general convention at Philadelphia, and in their sovereign corporate characters, proceeded to consider the nature of the compact, which it might be deemed wise to establish among themselves. All the proceedings which were then had, were despatched in their characters of sovereign states; and a government was instituted, not sustained by the sanction of a majority of the people of America, but by the sanctions of the people of the several states. The plan of government, then established, was conformable to suggestions heretofore made. Each of the sovereignties then assembled, determined to cede to the federal government certain portions of its sovereignty, reserving the residue unimpaired. In the cessions which were made, the government was enabled to concentrate the whole strength of the Union, for the assertion and vindication of our national rights. It was invested with sufficient power to tranquillize disturbances among the states, together with a general jurisdiction over such matters of general concern, as involved the common interests of the states, but which could not be wisely arranged, by the rival, partial, and conflicting legislation of the particular states. The jurisdiction over all other subjects was expressly reserved to the states respectively. All subjects of a local nature, the internal police of the states, the jurisdiction over the soil, the definition and punishment of crime, the regulation of labor, and all subjects which could be advantageously disposed, by the authority of a particular state, were reserved to the jurisdiction of the state governments. The wisdom of this regulation will not be questioned; for, it surely must be sufficiently obvious, that to subject our local or domestic affairs to any other authority than our own legislature, would be to expose to certain destruction, the happiness and prosperity of the people of Virginia. This principle was accordingly established: that all subjects of a general nature should be confided to the federal government, whilst those which were local in their character, were reserved for the jurisdiction of the states respectively.

This distribution of political power having been established by the constitution, the happiness and prosperity of the American people demand that it should be preserved. The theory of government, as established in America, contemplates the federal and state governments as mutual checks on one another, constraining

the various authorities to revolve within their proper and constitutional spheres. Each government is invested with supreme authority, in the exercise of its legitimate functions; whilst the authority of either is wholly void, when exerted over a subject withheld from its jurisdiction. Should either depository of political power, unhappily be disposed to disregard the constitution, and destroy the proportions of our beautiful theory, it devolves upon the other to interpose, as well from a regard to its own safety, as for the perpetual preservation of our political institutions. If there be a characteristic of the federative system, peculiarly entitled to our admiration, it is the security which is found for individual liberty in the separate energies of distinct governments, uniting and co-operating for the public good; but separating and conflicting, when the object is evil. This inherent characteristic of the federative system, was contemplated with the most anxious solicitude by the founders of the federal republic. It was in it, that they found the general interests of America, preserved from the clash of particular legislation; it was by it, that they fortified our domestic concerns from the invasions and infractions of federal authority. It was by it, that their fears were calmed and subdued, on the great question of adoption or rejection, when the very being of the federal constitution depended on the determination of the several states. The history of that eventful period discloses the apprehensions of illustrious sages, lest the sacred liberty of the American citizen should be invaded by the arbitrary acts of the general government; and that these apprehensions could only be allayed by the assurance and conviction, that the state governments were adequate to the resistance of federal encroachments. The legislatures, then, of the several states are contemplated by the theory of American government, as the guardians of our political institutions; and whenever their proportions are destroyed or violated, it becomes the duty of the several legislatures calmly and temperately to attempt their restoration.

The reflections in which your committee have indulged, constrain them to express their unfeigned regret that the government of the United States, by extending its influence to domestic manufactures, has drawn within its authority a subject over which it has no control, according to the terms of the federal compact; and that this influence has been exerted after a manner, alike dangerous to the sovereignty of the States, and injurious to the rights of all other classes of American citizens.

Acting under the influence of these reflections, your committee have contemplated with deepest interest the situation of the General Assembly, and the duties which devolve upon that body. They cannot suppress their solemn conviction, that the principles of the constitution have been disregarded, and the just proportions of our political system disturbed and violated by the general government. The inviolable preservation of our political institutions, is entrusted to the General Assembly of Virginia, in common with the legislatures of the several states; and the sacred du-

ty devolves upon them, of preserving these institutions unimpaired. Yet, an anxious care for the harmony of the states, and an earnest solicitude for the tranquillity of the Union, have determined your committee to recommend to the General Assembly, to make another solemn appeal to those with whom we unhappily differ; and, that the feelings of Virginia may be again distinctly announced, they recommend the adoption of the following resolutions:

1. *Resolved, as the opinion of this committee.* That the constitution of the United States, being a federative compact between sovereign states, in construing which no common arbiter is known, each state has the right to construe the compact for itself.

2. *Resolved,* That in giving such construction in the opinion of this committee, each state should be guided, as Virginia has ever been, by a sense of forbearance and respect for the opinion of the other states, and by community of attachment to the Union, so far as the same may be consistent with self-preservation, and a determined purpose to preserve the purity of our republican institutions.

3. *Resolved,* That this General Assembly of Virginia, actuated by the desire of guarding the constitution from all violation; anxious to preserve and perpetuate the Union, and to execute with fidelity the trust reposed in it by the people, as one of the high contracting parties, feels itself bound to declare, and it hereby most solemnly declares, its deliberate conviction, that the acts of Congress, usually denominated the tariff laws, passed avowedly for the protection of domestic manufactures, are not authorised by the plain construction, true intent and meaning of the constitution.

4. *Resolved, also,* That the said acts are partial in their operation, impolitic, and oppressive to a large portion of the people of the Union, and ought to be repealed.

5. *Resolved,* That the governor of this commonwealth be requested to communicate the foregoing preamble and resolutions to the executive of the several states of the United States, with the request that the same be laid before their respective legislatures.

6. *Resolved,* That the Governor be further requested, to transmit copies of the same report and resolutions to the senators and representatives of Virginia in the Congress of the United States, with a request to the representatives, and instruction to the senators, that the same be laid by them before their respective Houses.

Agreed to by the House of Delegates,

GEORGE W. MUNFORD, C. H. D.

February 21st, 1829.

Agreed to by the Senate.

ADDISON HANSFORD, C. S.

February 24th, 1829.

IN THE SENATE, MARCH 30, 1829.

The Speaker laid before the Senate a letter from the president of the board of canal commissioners of Pennsylvania, accompanied with a report of the board, relative to the powers, duties, and emoluments of the secretary of the board, which were read as follows, viz.

## PENNSYLVANIA CANAL OFFICE,

*Harrisburg, March 28, 1829.*

SIR,—I have the honor to enclose to you a report of the canal commissioners, made in obedience to a resolution of the Senate, calling for information as to the powers, duties, &c. of the secretary of the board.

With great respect,

Your most obedient servant,

DANIEL MONTGOMERY.

To the HON. DANIEL STURGEON,

*Speaker of the Senate of Pennsylvania.*

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The canal commissioners of Pennsylvania, in obedience to a resolution of the Senate, calling upon them for information as to the powers, duties, emoluments, and mode of appointment of the secretary of the board, respectfully report as follows:

The gentleman who now holds that office was re-appointed on the 2d of June last. Since that time his duties have been:

1st. The usual duties of a secretary, the nature of which requires no explanation.

2d. The general charge of all surveys preceding the location of canals or rail roads, not falling within the sphere of an acting commissioner or superintendent. These surveys, within the last year, have been eight in number, namely: For the Pennsylvania rail road from Columbia to Philadelphia—on the West Branch, from Bald Eagle to Northumberland—on the North Branch, from Nanticoke falls to Northumberland—on the Susquehanna, from Middletown to Columbia—on the Delaware, from Carpenter's point to Easton—on the Monongahela, Ohio and Allegheny—certain canal and rail road examinations between the Lehigh and Schuylkill and the Susquehanna—and the rail road surveys through Franklin, Cumberland and York counties. The direction of these surveys required of him to issue all instructions to the engineers; to correspond with them constantly; to provide them with the necessary funds from time to time; to receive their reports, and to report to the board at each meeting such information as might be necessary. It has been necessary, also, that he should visit the lines, when occasion called for personal inspection. On some of them his

presence has been frequently necessary; and, with a single exception, he has visited all while in progress. His authority on this head is expressed in a resolution of the board of the 26th March, 1828. (See documents, page 289.)

3d. To conduct the general correspondence of the board, and to communicate all orders to the several agents employed throughout the state.

4th. To keep the accounts of all monies expended upon surveys, and for the general expenses of the board, and to settle such accounts at the treasury.

5th. Although the superintendents of canal lines have the same powers and duties as acting commissioners, yet, as they are not members of the board, and cannot be intimately acquainted with all the views of the canal commissioners, it has been necessary to make the secretary the organ of communication between the board and these officers: that as the agent of the board, he should aid them and the engineers in the organization of their lines—instruct them as to matters of form in the execution of their duties—afford them his counsel and advice in difficulties, and communicate to the board at their several meetings all necessary information in relation to the progress and state of the work.

6th. Since the location of the Pennsylvania rail-road, that branch of the public works has been under his direction in a peculiar manner. At the session of the board in December last, a question as to the appointment of a superintendent for that line, came before them. A number of applications and recommendations were presented; but on account of the equal merits of some of the most prominent applicants, they found themselves greatly at a loss to decide. It was proposed, that the secretary should be appointed temporary superintendent of that line, with the powers, &c. until a permanent appointment took place of an acting commissioner; and a resolution to that effect was passed. The secretary, upon being informed of this proceeding, expressed his willingness to give his time and labor to the duty, except so far as the payment of money was concerned; and proposed that the superintendent of the Eastern Division should be nominally appointed for the rail-road, in order that the necessary sums of money might be drawn from the treasury and disbursed. This arrangement was acquiesced in by the board; and since that time the secretary has been vested with the powers of a superintendent on the rail-road line; or, in other words, has represented the authority of the board when not in session. All the services connected with this appointment have been performed without extra compensation; and in fact, at considerable expense to the officer.

7th. A considerable number of occasional duties have from time to time devolved upon the secretary, by special resolutions of the board, which it is not necessary to enumerate, as they will appear by reference to the minutes among the printed documents.



The extent of power enjoyed by the secretary under the 1st, 3d, 4th, 6th and 7th articles of his enumerated duties, require no explanation.

On the subject of surveys he possesses a general authority to take such measures as he may deem expedient, with the approbation of the president; subject to certain general principles established by the practice of the board, and to the approval of the board at the first meeting thereafter.

Upon the lines of canal when once under contract, his authority extends no further than to converse with the superintendent, give him information when required; and it is his duty to keep up such an accurate acquaintance with the several lines, as that he may be able to furnish the board at their meetings with all required information.

It is proper to remark that no such office as a superintendent of surveys has existed in their service, since the first day of June last. All the duties belonging to that title, having been vested in the secretary.

The secretary of the board is elected annually by ballot. His salary for this year has been \$2000, out of which the expenses attending his duties are paid.

From the detail which has been given of the powers and duties of the secretary, it will be obvious that they have been assigned rather with reference to the character, experience and competency of the officer, than to the title of the office itself. The organization of the board renders the services of some one having these powers, by whatever name he may be called, absolutely indispensable. The extensive correspondence which must be kept up, and the frequent journeys required, can only be performed by an officer properly paid for the devotion of his whole time and talents to the business, and his residence must be at a point easily accessible, and admitting of regular communication by mail in all directions. No member of the board could undertake the performance of these duties. The acting commissioners being fully occupied with the affairs of their respective divisions, and the other members receiving no compensation.

Among the most important duties of the secretary, is that of organizing new lines of canal, and instructing newly appointed officers of all kinds, as to the nature and forms of their duties, and the principles which have been established by the practice of the board. For this purpose he has possessed advantages which no other individual can have, and which he has improved in such a way as to render his services of very great value.

If these powers, duties and responsibilities, in the aggregate, should appear to be large, the answer is, they have gradually increased with the extension of the system, and with the increasing confidence of the board, in the capacity and fidelity of this officer; a confidence which, without a single exception, in nearly four

## REPORT OF THE

years of active and arduous service has been fully vindicated. The board are not aware of any instance in which the legitimate powers and duties of this officer have been exceeded or perverted; on the contrary, they have been executed with a promptitude, zeal and ability, entirely satisfactory to the board, and as the board believe highly advantageous to the commonwealth.

Signed by order of the canal commissioners.

DANIEL MONTGOMERY.

IN THE SENATE, MARCH 30, 1829.

The Speaker laid before the Senate a letter from the president of the board of canal commissioners, accompanied with a copy from the minutes of their proceedings, and copies of certain documents therein referred to, relating to further surveys made under the authority of the board, on the eastern end of the Pennsylvania rail-road, which were read as follows, viz:

## PENNSYLVANIA CANAL OFFICE,

*Harrisburg, March 28, 1829.*

SIR—In obedience to the direction of the canal commissioners, I have the honor to transmit to you, for the information of the House, a certified copy from the minutes of their proceedings, and copies of certain documents therein referred to, relating to further surveys, made under the authority of the board, on the eastern end of the Pennsylvania rail road.

With great respect,

Your most obedient servant,

DANIEL MONTGOMERY.

To the HON. DANIEL STURGEON,  
*Speaker of the Senate of Pennsylvania.*

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At a meeting of the canal commissioners of Pennsylvania, on  
the 27th day of March, 1829.

The Secretary laid before the board, a report of his proceedings in regard to the termination of the Pennsylvania rail-way, at or near the city of Philadelphia, during the recess of the board, accompanied by a report of surveys made under his direction, by Messrs. Wilson, Robinson and Hopkins, engineers.

Whereupon the following resolutions, were unanimously adopted.

*Resolved*, That the measures adopted by the secretary, in procuring further surveys and examinations, in regard to the eastern termination of the Pennsylvania rail-way, the same having been adopted with the approbation of the president of the board, and in accordance with its uniform practice, be approved and confirmed

*Resolved*, That the president be directed to transmit to both branches of the legislature, for their information, copies of the reports of the engineers and of the secretary, and all other documents connected with the subject.

From the minutes of the board.

JOS. M'ILVAINE, *Secretary.*

*Report from Messrs. Wilson, Robinson and Hopkins, engineers.*

JOSEPH M'ILVAINE, Esq.

*Secretary to the board of Canal Commissioners.*

SIR:—In compliance with your joint and separate instructions to us, on the 2d and 14th of January, and the 7th inst. we respectfully

## REPORT:

First, as to the merits of a line crossing at Fairmount, as explained in your letter to the undersigned, Messrs. Robinson and Hopkins.

Such a line is perfectly practicable, but involves considerable difficulties. Two heavy embankments, a deep cut, and an unusual portion of rock excavation must be encountered. And in order to bring the rail-way by a gentle and easy curve on a bridge at the point proposed, it will be necessary to incur the expense and inconveniences of a tunnel 31 chains long, and 20 by 12 feet high.

In the event of the adoption of this line, it would be advisable to fall at the stationary engine at Judge Peters', ten feet lower than has been contemplated on the line reported by Major Wilson; and afterwards to continue on a horizontal plane to the summit, between the Delaware and Schuylkill. This profile is recommended, not because an undulating line or lower bridge at Fair-Mount would be inadmissible, but because no saving of expense would be produced by such a change, which would justify impairing the profile of this part of the line.

Should the location of the line reported by Major Wilson be confirmed, its graduation should in our opinion be so modified, as to attain an elevation 37 feet above high water, at a point 48 chains before reaching picket 42. This would be done in order to give it all the advantage it could have for a connexion with shipping on the Schuylkill, without reducing it below the level of the summit between this river and the Delaware. In this case, the line reported by Major Wilton, would, at the point alluded to, intersect with that crossing at Fairmount.

The following estimate of the line crossing at Fairmount by Mr. Hopkins, and the annexed abstract from the estimate of Major Wilson, of the line reported by him, present views of the cost of each route from the foot of the inclined plane to their point of intersection.

### *Estimate of line crossing at Fairmount.*

50501	yards embankment at 12 cents	\$ 6060 00
12828	do of rock at \$ 1	12828 00
3396	do excavation above rock at 8 cts	271 00
22888	do do at 7 cts	1602 00
16215	do embankment at 9 cts	1459 00
19420	do excavation deep cut at 10 cts.	1942 00
9702	do rock at \$ 1 25	12136 00
19163	do tunnel excavation at \$ 2 50	47907 00

428 perches masonry at \$2	856 00
9711 yards rock at 60 cts	5826 00
1614 do embankment at 9 cts	145 00
3500 do excavation at 8 cts	280 00
2 miles and 40.10 laying rails	24000 00

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\$ 115,312 00

*Bridge.*

8 piers, 5467 cubic yards masonry, at \$ 5	23285 00
Abutment and wing-walls on east side of river, including arch for road, 3326 cubic yds at \$ 2 50	6315 00
Preparing rock for abutment on west side river	300 00
800 feet superstructure	24000 00

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\$ 55,900 00

Cost of rail-way formation and laying rails 115,312 00

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\$ 171,212 00

*Line reported by Major Wilson.*

Amount of bridge embankment, and bridge across Schuylkill, as per estimate Pennsylvania rail-way,	50,391 04
Amount of excavation and embankment from the commencement of the old Union canal to point of intersection of lines,	2687 75
Additional expense of graduation to level of 37 feet above tide,	1000 00
Cost of laying rails on 2 $\frac{7}{8}$ miles of road-way,	18700 00

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\$ 72,778 79

It appears from a comparison of the above estimates, that the increased cost of continuing the rail-road on the right bank of the river to Fairmount, and of crossing at that point would be \$97,433 21. The two lines, as regards a connexion with shipping on the east shore of the Schuylkill, and with the Delaware, present equal advantages.

But the lining crossing at Fairmount, offers a facility of connexion with tide water on the west shore of the Schuylkill, not afforded by the location of Major Wilson. On the other hand, the tunnel which will be required on this line, and the necessity of crossing at Fairmount in an exposed situation, by an oblique bridge present very strong objections to it.

Secondly, "as to the practicability and cost of a branch line from the inclined plane, near judge Peter's to a point on the sloop navigation of the Schuylkill, below the permanent bridge." Two lines have been examined with a view to this object: one following the trace of the line, crossing at Fairmount, until within half a mile of the proposed crossing point, here ascending a ravine nearly at right angles with the river, and passing back of Mantua

village, near the junction of the roads from the two bridges, and terminating opposite the permanent bridge.

A second passing along the bluffs and sloping shore of the Schuylkill, the whole distance from the foot of the inclined plane, to the first wharf below the said bridge. The first of these lines would involve the necessity of a brake at its point of termination, and either of the lines would be very expensive for a double branch on which a lesser radius of curvature, than that adopted on other parts of the rail-road, was deemed inadmissible.

For a single branch with occasional crossing places, on which greater were allowed, the trace adhering to the river slope would be preferable. "The branch line commences at the termination of the inclined plane at Judge Peters', and is traced on the margin of the Schuylkill river for eighty-one chains, to a position beyond the residence of S. Breck, Esq. at a descending graduation of 30 feet per mile; from thence it is kept level for ninety-eight and a half chains, until it passes below the dam at Fairmount, and on the remaining part of the distance, which is sixty-one chains, the descending graduation is 24 feet per mile. Its termination is at a position south of the permanent bridge, and on a level with the wharf immediately below that bridge.

In locating this branch, the horizontal curves may be determined within the limits assigned for the main line, excepting at the projecting rock near the residence of Rundel, Esq. where the radius of curvature cannot, without a considerable addition to the cost of the road, be greater than 400 feet. In the present trace, the radius at this point is 378.2 feet, the interior angles of the sides of the polygon of sixty-six feet each, being ten degrees."

### SECTION 1.

From the foot of the inclined plane, the line curves southwardly, and crosses with a balustrade bridge, a small run; from thence it pierces a point of side hill, 21 feet at the greatest depth, and is conducted along the slope hill, crossing in its course two runs, and encountering ledges of rock. The section terminates in front of the residence of S. Breck, Esq.

Embankment at end of plane on 13 chs. greatest depth, 14 ft	6178 c. yards, at 15 cts.	926 70
Excavation on 8.20 chs. greatest depth 21.1 ft.	8826 c. yds. at 16 cts.	1412 16
Excavation on 9.75 chs. greatest depth 8 ft.	1735 c. yds at 80 cts.	138 80
Embankment at run on 41 chs. greatest depth 17 ft.	1884 c. yds. at 14 cts.	263 67
Excavation on 5 chs. greatest depth 5.3 ft.	503 c. yds. at 12 cts.	60 36
Embankment on 3½ chs. greatest depth 5 ft.	464 c. yds. 12 cts.	55 68
Excavation on 7 chs. 484 c. yds. at 9 cts.		43 50

Side cutting solid rock on on 5½ chs. 248 c. yds. at 50 cts.	124
Embankment on 2 chs. greatest depth 14.6 ft 967 c yds at 12 cts	116 04
Excavation on 6½ chs greatest depth 14.2 ft 1158 c yds (side cutting) of rock at 50 cts & 1704 c yds of common excavation at 8 cts	716 12
Excavation of rock (side cutting) on 4.30 chs greatest depth 2.8 ft 1709 c yds rock at 50 cts & 1413 c yds common excavation at 8 cts	967 54
Embankment on 2 chs greatest depth 7 ft 251 c yds at 12 cts	30 12
Excavation on 8 chs greatest depth 6 ft 1078 c yards at 8 cts	86 24
36 perches of slope wall at 75 cts	27
One bridge \$986, 2 culverts \$250 and 2 cross drains \$22	1258
One road bridge	100
Light grubbing on 31½ chs at \$100 per chain	31 50
	<hr/> \$6357 58

## SECTION 2.

After crossing a run near Mr. Breck's, the line is traced for a few chains along a steep side hill; it then turns Rundel's point, with 17 feet side cutting in solid rock, and terminates on favorable ground.

Embankment at Breck's run on 230 chains, greatest depth 14 feet 1129 cubic yards, at 13 cents,	146 77
Excavation on 9.60 chains, greatest depth 9 feet 1008 cubic yards at 50 cents, and 2010 cubic yards of com- mon excavation at 9 cents,	684 90
Embankment on 3 chains, greatest depth 9.1 ft. 536 c. yards at 12 cents,	64 32
Side excavation on 6 chains, do. 17 ft. solid rock, 1307 cubic yards at 50 cents,	653 50
Side embankment on 3½ chains, greatest depth 11.5 ft. 871 cubic yards at 12 cents,	104 52
Excavation on 27 chains, 3646 cubic yards at 9 cents,	328 14
Embankment on 2½ chains, greatest depth 13 feet 1608 cubic yards at 12 cents,	192 96
Excavation on 8 chains, greatest depth 16 feet 3801 cu- bic yards at 11 cents,	418 11
Embankment on 12 chains, 842 cubic yards at 12 cts.	101 04
Three culverts of 6, 6 and 3 feet,	340 00
Four cross drains,	55 00
Paving embankments 521 square yards at 40 cents per yard,	208 40
Grubbing on 22 chains, at \$1 50	33 00
	<hr/> \$ 3330 66

## SECTION 3.

Near its commencement the line is curved on a steep side hill of solid rock, which it pierces at an average depth of six feet, and after passing in the rear of Mr. Harding's hotel, is traced on favorable ground to a point south of West Philadelphia street, below the permanent bridge, where it terminates.

Excavation on 18½ chains, average depth 6.5 feet solid rock 3529 cubic yards at 50 cents,	\$1764 50
Embankment on 6 chains, greatest depth 8.4 feet 961 cubic yards at 12 cents,	115 32
Excavation on 3½ chains, greatest depth 4.2 feet 262 cubic yards at 7 cents,	18 34
Embankment on 11 chains, do. 10 feet 5128 cubic yds. at 13 cents,	666 64
Excavation on 45 chains, 5221 cubic yards at 8 cents	417 68
Two culverts of 4 and 3 feet \$110, two x chains \$14	124 00
Grubbing on 18 chains, at \$1 per chain,	18 00
Paving embankment 402 square yards at 40 cents	196 80
	<hr/>
Total amount for grading road,	\$3,321 28
To 3 miles of railway, including passing places, gravel for horse path, &c. \$ 4207 84 per mile	13,069 52
To extra for double branch beyond West Philadelphia street,	\$2,623 52
	<hr/>
	505 97
	<hr/>

Total cost of Branch line, \$26,138 01  
 Respectfully submitted by  
 JOHN WILSON, Engineer.

*Thirdly*, "As to the practicability, expediency, and cost of continuing the main railway line from the inclined plane aforesaid, down the west side of Schuylkill, and entering the city by a bridge at any point below the bridge at Harding's."

The line followed on this plan would be the same with that which would be recommended with a view to crossing at Fair Mount as far as the northern entrance of the tunnel. On the last proposed plan, the expense and inconvenience of a tunnel would be avoided; because the rail road might be conducted around the bluff, opposite Fair Mount, if crossing the river at that point is not contemplated, without incurring a greater convexity in any part of the distance than is admitted on other sections of the railroad. The expense of crossing the river, would, however, be much increased in consequence of the increased cost of founding piers, and the necessity of very heavy embankments.

A line crossing opposite Race street on the lowest bridge, which would be admissible, and descending at the greatest rate of graduation, must, nevertheless, be carried as far as Schuylkill Second street, before it would attain the surface of the street, as regulated by the city council. As it must rise from this street to the divid-



ing ground between the Delaware and Schuylkill about twelve feet, it will be readily observed, that it will present a very ineligible profile for a line leading to the Delaware, in comparison with either of the lines above considered. The great objection, however, to this plan, arises from its greater interferences with streets and city arrangements, than any other, and its unnecessarily lengthening the distance to trains of wagons going to the Northern Liberties at any point north of Callowhill street. It appears to us, that no part of the Delaware front presents more advantages for the accommodation of an extensive export trade, or would be more easily attained by branch rail roads, from either the Fairmount location, or that of major Wilson, than that part of it immediately north of the street above named. The plan under consideration increases the distance to this part of the Northern Liberties without producing correspondent diminution in that to the city front. Presuming, however, this augmentation of distance to have no prejudicial effect, the large commerce which may be expected to settle north of Callowhill street, would be made undecessarily to cross this street and Vine street, instead of being conducted, as it might, by a line altogether north of them to the Delaware. When it is recollected, that the former street must always constitute a leading avenue to the city, the advantage of diminishing the necessity of passing it with trains of rail road cars will be at once perceived.

*Fourthly*, "As to the practicability, expediency, and cost of carrying the main line after crossing the Schuylkill near Peters' island, down that river, so as to terminate on tide water at a point either below the permanent bridge, or between it and the bridge at Harding's."

It has been observed above, that in the event of the execution of the line recommended by major Wilson, it will be advisable so to modify its graduation as to attain 48 chains before reaching picket No. 42, an elevation of thirty-seven feet above high tide. From this point and level, a line was carried along Schuylkill Second street to the river at the end of Chestnut street. The connection with the shipping may be advantageously made by this line. A long embankment, but not very heavy, will be required, and some of the streets intersected must be passed by bridges. These results will not, it is believed, be productive of material inconvenience. At any rate, no other line appears to present less; and a railway to the shipping of the Schuylkill on the east side of the river, to be executed either by the state or a company, cannot in our opinion be dispensed with.

Having answered so far as appeared to us necessary, the several questions presented by you, we now proceed to compare the lines proposed for the continuation of the public road, or as leading lines, with that reported by major Wilson. The plan of crossing between the two bridges, has in our opinion nothing to recommend it but the facility of connecting with shipping west of the Schuylkill. It increases materially the distance to the Northern Liberties, and somewhat increases that to the city front on the Delaware. It

will be more expensive than any plan which has been proposed, and presents greater inconveniences than any other, from an interference with streets.

A line crossing at Fairmount offers equal advantages for connecting with it to every part of the city and its dependencies, between the Delaware and Schuylkill, and reduces the length of the branch recommended by the commissioners, about two miles. This advantage, however, would in our opinion be too dearly purchased, by the increased cost of this location, (\$97,433 21) the increased length of the leading line, (13 chains) and the lasting inconveniences of the tunnel.

It remains to discuss the relative advantages of conducting the line reported by major Wilson to the Schuylkill wharves, or of terminating it at or near the dividing ground between the Delaware and Schuylkill.

There can be, it is believed, no question, that as soon as the termination of the rail road by the commonwealth is definitively settled, individuals or companies will present themselves to undertake the execution of this and other eligible connections with both rivers. There is, therefore, in our opinion, no sort of necessity for the execution of this or any similar line by the commonwealth. The same, however, cannot be said of the proposed continuation of the line to Broad street;—so far, *at least*, it seems to us, it should be executed by the state, because so far it is necessarily the stem of all the connections with the Delaware; and were the line occupied by a company, embarrassing difficulties might be presented in the way of valuable and eligible branch lines.

It is asked in your letter of instructions, of the 7th instant, "Supposing the bridge located by Mr. Hopkins across the Schuylkill, near Fairmount, to be reduced to the least elevation consistent with its safety, what would be the effect of such a change upon the cost of his line? What advantages would a bridge so constructed have for the purposes of communication with the Schuylkill, on the east side, over that proposed by Mr. Hopkins, or over the line adopted by the canal commissioners, on the recommendation of Major Wilson? Would it be practicable to attain the same or nearly the same advantages by so graduating Major Wilson's line as to reduce its elevation where it approaches nearest to tide water?"

It was deemed inadvisable to cross at Fairmount at a less elevation than 37 feet above high tide, because it was proposed at this elevation to pass the dividing ground between the Delaware and Schuylkill, and it was ascertained that a horizontal plane might be preserved from the foot of the stationary engine, without any material augmentation of expense. The same considerations recommend, in our opinion, that the line reported by Major Wilson should not be graduated to a lower level at the point where it approaches nearest the tide water of the Schuylkill. Undoubtedly a bridge five or six feet lower than that located at Fairmount might be constructed with safety; and the line reported by Major Wilson could be likewise depressed to the same extent below the level we

have contemplated. It is not, however, thought that this reduction in the level of either line would be justified by any increased facilities it would present with a connection with the east side of the Schuylkill.

It appears, however, from the statement of Major Wilson, herewith submitted, that a branch line may be taken from the line reported by him at such a point as to admit of its attaining immediately north of Front street, where it would diverge from his location an elevation three feet more depressed than that of his located line at its point of termination in Broad street, and that the branch may afterwards be conducted either along Front or Ashton streets to Market street, or to tide water, below Chestnut street.

We conclude by stating what we presume has been already inferred, that the line adopted by the board of canal commissioners, crossing opposite Judge Peters', and following the bed of the old Union canal, with the change in its graduation proposed, presents, in our opinion, the most eligible and least expensive route to the city, and at and near its point of termination offers as many facilities for an extensive distribution of, and consequently a full and free competition for the trade of the Columbia rail-road, by branch rail-roads, as any one locality can combine.

We have the honor to be, sir,

Your obedient servants,

MONCURE ROBINSON,  
JOHN WILSON,  
WM. R. HOPKINS.

I have signed the foregoing report, because in all important particulars it corresponds with my opinion. There is one point, however, upon which I beg leave to explain my views, for fear I may be misunderstood. In speaking of a branch line from Judge Peters', on the west margin of Schuylkill, the necessity of incurring greater curves than are allowed on the main line is spoken of, and it might be inferred, that the branch from this cause would be exposed to serious inconveniencies. I therefore state, that having surveyed such a line, I am satisfied that in one point only would any curvature, more abrupt than in the main line be necessary, namely, at Rundel's point, and even there it might with no important increase of expense be kept within the limit of 400 feet allowed in the Baltimore and Ohio rail-way. Another expression I find it necessary to qualify, that a double branch on the west side would be very expensive. From the notes taken of the survey of the single branch, I am satisfied that a double line, having the same curvatures as the main line, excepting at Rundel's point, where it might be reduced to 400 feet radius, may be constructed all the way from Judge Peters' to the position below the permanent bridge, for \$ 65,000.

JOHN WILSON.

*Statement of Major Wilson, referred to in the foregoing report.*

With a view to ascertain the practicability of locating a branch line from the trace of the rail-way, in the bed of the old Union canal, along the eastern margin of the Schuylkill river, a level was assumed which would coincide with the head of the east abutment of the bridge at Fairmount, and which was ascertained to be about 27 feet above high water of common tide.

This level will reach a position in Callowhill street, about one chain below its intersection with Schuylkill Front street, and is traced northerly to the old location, at an ascending graduation of 30 feet per mile, and distance of 26 chains. The point where the branch will diverge from the Union canal, will require a depression from its former location, of only 3 feet below what this location is at Broad street. From Callowhill street the branch may be conducted either through Schuylkill Front to Market street, or through Ashton, from its intersection with Vine street, thence to tide water below Chesnut street.

In grading down from Callowhill street, through Schuylkill Front, at a rate of 30 feet per mile, it was ascertained that the slope would pass nine feet under Market street; whence it is inferred, that from the located line in the old Union canal, a branch of the rail-way may be conducted on the eastern margin of Schuylkill river, convenient to the commerce of that river, and accommodating itself to the regulations of streets, both in the district of Spring Garden, and in the city of Philadelphia.

JOHN WILSON, *Engineer.*

**Report from the secretary of the canal commissioners,  
on the subject of the further surveys on the Pennsylvania  
rail way.**

*To the Canal Commissioners of Pennsylvania.*

It becomes my duty to report the nature and result of certain surveys, which, since the adjournment of the board in December last, have been made with a view to fix the termination of the Pennsylvania rail-way, at or near the city of Philadelphia. It will be recollected, that at the last session of the board, while the report of Major Wilson was under discussion, a member of the Senate, who exhibited some anxiety on the subject, addressed to me in presence of the board, the question, whether any actual survey had been made from the inclined plane near Judge Peters, down the west side of the river, with a view either of crossing at a point lower down the river, or of terminating on that side upon sloop navigation. And the further question, whether any surveys had been made to determine the expediency of carrying the line as located by Major Wilson, from near Fairmount, so as to end on sloop navigation on the east side. My answer was, that Major

Wilson had surveyed the west side far enough below Judge Peters', to satisfy him, that it would afford a less eligible line than the one selected, and no farther. That in the same way the examination on the east side had been confined to the general question of eligibility, and that time had not permitted an accurate survey of every mode of passing into the city, which might have been suggested. The board will further recollect, that the want of more particular surveys was then urged as an argument why the board should stop their location at judge Peters', until an opportunity could be afforded for more particular investigation. The answer to this argument, and the principle upon which the board proceeded, was, that by the terms of the law, they were bound to locate a complete line to the city, before they proceeded to enter into contracts for any part, but that by restricting the order for contracts to the west side of the Schuylkill, they might at any future time correct or improve the mode of entering the city recommended by Major Wilson. It was then understood by me, and it doubtless was the intention of the board, that a convenient opportunity for testing the correctness of Major Wilson's plan should be embraced, and that every survey tending to that object, or calculated to satisfy the public mind, should be made, in the mode and under the authority recognized by the practice of the board. I am thus particular in recalling the recollection of the board to the occurrences of the last meeting; because, in the excitement to which these questions have given rise, my authority as the agent of the board, to direct those surveys has been impeached, and I am anxious of course, that the truth of the case should be placed on record under their immediate sanction. After the adjournment I returned to Philadelphia, with the general impression derived from conversations at the board, that the several examinations spoken of in the vicinity of the city, were to be made by the engineer under my direction; but with no idea that it was necessary to make them during the winter season. In the latter end of December, I was called upon by the same gentleman, who had appeared before the board, who urged the necessity of making those surveys at the earliest possible time. I stated in reply, that the attention of the engineer was then occupied in the preparation of his line for contracts, and that he would probably have no time to spare until the closing of the contracts on the 27th of January. The request was repeated more than once, and with the appearance of so much anxiety, that I determined immediately to issue instructions to the engineer, requiring him at the earliest moment within his power to proceed to the execution of the surveys referred to. These instructions bear date on the second of January, and a copy was furnished at the same time to the gentleman at whose solicitation they were prepared. For about ten days after this time, the engineer was constantly occupied in the staking out of the portion of the rail-road, ordered to be contracted for, and there seemed no probability that himself, or his assistants, could be spared from that duty within the month of January.

A resolution was offered in the Senate about the sixth of January, the object of which seemed to be to stop the rail road as a state work, on the west side of Schuylkill, and to leave its continuation into the city of Philadelphia to individual enterprise. The appearance of this resolution, and of the discussion which took place upon it in the public prints, naturally excited great feeling in Philadelphia. I found myself overwhelmed with inquiries on the subject, and I soon felt, that to furnish information to the public, and that too with the least possible delay, had become an imperative duty. Two engineers in the service of the board, Messrs. Robinson and Hopkins, the nature of whose employment placed them under my immediate direction, were then in the city, and not occupied by any business of an urgent nature. In the state of anxiety evinced by the public, it seemed to me important to add weight to the opinion which might be expressed on the subject, and thus, as soon as possible, to remove alarm or misapprehension. I therefore requested those gentlemen to join with Major Wilson, in the execution of the instructions previously given to him, and I added, from time to time, such further directions as to embrace all the points upon which public opinion appeared to be divided. In order that the regular operations of the rail road line might not be stopped, I directed Mr. Hopkins, with the party who had served under him on the Cumberland survey, to take charge of the field operations. This he did, except upon the location of a branch line from Judge Peters' to sloop navigation, on the west side, which was conducted by Major Wilson. The other engineers visiting the work often enough to form a just idea of the location, and carefully viewing all the ground. The necessary surveys being completed, the three engineers, after full consultation and comparison of opinions, prepared and delivered to me the report which accompanies this paper. It is proper I should state, that all my arrangements in relation to these subjects were promptly communicated to the president of the board, and received his approbation. During the period while the examination was in progress, he visited Philadelphia, and I took that opportunity to show him the ground, and obtain the benefit of his opinion in aid of my own. At a town meeting of citizens of Philadelphia, a committee was appointed to examine and report upon the several questions arising upon the termination of the rail road. This committee called upon me very frequently for information, and finally requested that I would reduce to writing, for their use and that of their constituents, all such views of the subject as had occurred to me. I did so at full length, in a letter, of which a copy is now furnished to the board. I am aware that it is not such a document as can regularly be placed upon file; but as I undertook in that letter to explain the views which governed the board in the location of the railway, it is proper they should have an opportunity of examining it, and of correcting any misrepresentation of their opinions.

Respectfully submitted,

JOSEPH MILVAINE, *Secretary.*

*Harrisburg, March 25th, 1829.*

*Philadelphia, Saturday evening, February 7, 1829.*

*To Messrs Wilson, Robinson and Hopkins, engineers, &c.*

GENTLEMEN—I have to request, that in addition to the matters contained in the sketch of a report exhibited to me this morning, you will answer as clearly as possible the following questions:

1st. How far the estimate of the cost of a branch line from Judge Peters' to sloop navigation, on the west side of Schuylkill, may be reduced by assuming a lower level than would be necessary for crossing the river, by constructing a single track railway with suitable turns out, or by admitting a greater boldness of curvature than would be proper on a main line of communication.

2d. Supposing the bridge located by Mr. Hopkins across the Schuylkill, near Fairmount, to be reduced to the least elevation consistent with its safety, what would be the effect of such a change upon the cost of his line? What advantages would a bridge so constructed have for the purposes of a communication with the Schuylkill, on the east side, over that proposed by Mr. Hopkins, or over the line adopted by the canal commissioners, on the recommendation of Major Wilson? Would it be practicable to attain the same, or nearly the same advantages, by so graduating Major Wilson's line as to reduce its elevation where it approaches nearest to tide water? Taking all these circumstances into consideration, and having reference to a connexion as well with the navigation of the Delaware, as with that of the Schuylkill, what plan would you recommend as on the whole the most advisable? These latter questions are suggested to meet the views expressed in conversation to-day by Mr. Harper, one of a committee appointed at a public meeting of the citizens of Philadelphia; and I am not without the hope that they may be so answered as to prevent any serious conflict of interests on this side of the Schuylkill.

I am aware that some further examinations on the ground will be necessary, and Major Wilson will provide a party for the purpose on Monday morning. It is particularly desirable that the course of a line crossing the Schuylkill, at Fairmount, at the least elevation admissible for a bridge, and extending thence in a direction the most favorable for a junction with sloop navigation, shall be distinctly ascertained. The materials for comparing this line with that of Major Wilson and with one crossing at Fairmount, with the elevation proposed by Mr. Hopkins, will then be complete.

Very respectfully,

Your obedient servant,

JOSEPH M'ILVAINE,  
*Secretary Canal Commissioners.*

*Instructions to Major Wilson.**Philadelphia, January 2, 1829.*

DEAR SIR—You are requested to examine the two sides of the Schuylkill river, from Peters' island to a point below the permanent bridge, with a view to determine the following questions:

1st. The practicability and cost of a branch line from the inclined plane, near Judge Peters', to a point on the sloop navigation of the Schuylkill, below the permanent bridge.

2d. The practicability, expediency and cost, of continuing the main railway line from the inclined plane aforesaid, down the west side of Schuylkill, and of entering the city by a bridge at any point below the bridge at Harding's.

3d. The practicability, expediency and cost, of carrying the main line, after crossing the Schuylkill near Peters' island, down that river so as to terminate on tide water, at a point either below the permanent bridge or between it and the bridge at Harding's.

In making your examinations with reference to the second question, you will be particularly careful to sound the bed of the river between the two bridges, and ascertain the facilities it affords for the erection of a bridge. You will also ascertain the practicability of extending the rail-road, after it crosses by the bridge, either in a direction towards the Delaware, or up and down the Schuylkill.

You are requested also to institute a comparison between the two routes for the main rail-way suggested in these instructions, and that which has already been recommended; shewing the advantages and disadvantages attending each; to which you give the preference, and your reasons for such preference.

I shall hope to receive a full report from you on these subjects at an early day, accompanied with accurate estimates of the cost of the several plans proposed; and with explanations how far the routes, or either of them, if adopted, will have a tendency to destroy private property, or to disturb the regulations of the public streets.

Very respectfully,

JOSEPH M'ILVAINE,

*Secretary, &c.*

*To Moncure Robinson and W. R. Hopkins, Esqs. engineers in the service of the state of Pennsylvania.*

Gentlemen,—Enclosed is a copy of certain instructions recently issued to Major Wilson, engineer of the Pennsylvania rail-road, requiring some further examinations to be made with a view to the termination of that improvement within, or near the city of Philadelphia. Since these instructions were issued, I have deemed it proper in the execution of the duties assigned me by the



canal commissioners, to combine for the inquiry, all the professional skill within my control; and I have therefore to request, that you will consider yourselves associated with Major Wilson, in the investigation contemplated by the paper enclosed, so far as to form an opinion upon the merits of the several plans which have been suggested. In addition to the points therein referred to, your attention is requested to a route subsequently proposed, which contemplates a bridge across the Schuylkill near Fairmount dam, and an extension thence either down the Schuylkill, or in a direction towards the Delaware, or both.

You will take the earliest opportunity of conferring with Major Wilson, and of passing with him over the ground, in order to obtain the necessary explanations, and to decide what further surveys will be required, as the basis of an opinion. Mr. Hopkins, with the members of his party now in the city, and with such further aid as he may have occasion for, will execute these surveys. As soon as they are completed, you will again confer with Major Wilson, and will report your opinions either jointly or separately, as may be found necessary.

Very respectfully,

Your obedient servant,

JOS. M'ILVAINE,

*Sec'y Can. Com.*

*Office of the Canal Commissioners,*

*January 14, 1829.*

IN THE SENATE, APRIL 1, 1829:

The Secretary of the Commonwealth being introduced, presented a message from the Governor, accompanied with a letter from the governor of Louisiana, together with a copy of certain resolutions of the legislature of that state, relative to an amendment of the constitution of the United States, which were read, viz:

*To the Senate and House of Representatives of the Commonwealth of Pennsylvania.*

GENTLEMEN,

I have the honor of transmitting to you a copy of a letter from the governor of the state of Louisiana, together with a copy of certain resolutions adopted by the legislature of that state, relative to the first section of the second article of the constitution of the United States; and recommending the same to be so amended, that the President and Vice-President shall hold their offices for the term of six years, and that the President shall be ineligible afterwards.

J. AND'W. SHULZE:

*Harrisburg, April 1, 1829.*

*New Orleans, March 3, 1829.*

SIR.

The enclosed copy of certain resolutions adopted by the legislature of this state, is respectfully forwarded by

Your obedient servant,

P. DERBIGNY, Governor  
of the state of Louisiana.

HIS EXCELLENCY, the Governor  
of the state of Pennsylvania.

**Resolutions of the legislature of the state of Louisiana.**

*Resolved by the Senate and House of Representatives of the state of Louisiana, in General Assembly convened, That the following amendment to the constitution of the United States, be proposed to the several states of the Union, viz. That the first section of the second article of the constitution of the United States be so amended that the President and Vice-President of the United States shall hold their offices for the term of six years, and that the President shall be ineligible afterwards.*

*Resolved, That the Governor of the state transmit the above resolution to the governors of the several states, to be by them submitted to their respective legislatures.*

A. B. ROMAN, Speaker  
of the House of Representatives.

AD. BEAUVAIS,  
President of the Senate.

Approved, February 4, 1829.

P. DERBIGNY, Governor  
of the state of Louisiana.

IN THE SENATE, APRIL 20, 1829.

The Speaker laid before the Senate a letter from the Adjutant General and Auditor General, accompanied with a report and abstracts relative to the accounts between this commonwealth and the United States, for arms and other military stores, passed between them during the late war.

*Harrisburg, April 20, 1829.*

SIR,

In pursuance of the provisions of the act of Assembly, passed the 29th day of March, 1824, entitled "An act to authorise the settlement of certain accounts between the government of the United States and this commonwealth," we have the honor to submit the enclosed report, together with the documents accompanying the same.

Very respectfully,  
Your obedient servants,

G. B. PORTER, *Adjutant Gen'l, Pa.*  
DAVID MANN, *Auditor General.*

HON. DANIEL STURGEON,  
*Speaker of the Senate.*

*To the Honorable the Senate and House of Representatives of the commonwealth of Pennsylvania.*

In pursuance of the directions contained in the act of Assembly, passed the 29th March, 1824, authorising the Auditor General and the Adjutant General of this commonwealth, to "adjust and settle with the government of the United States, or any lawfully authorised department or agent thereof, all accounts between this commonwealth and the United States, for arms and other military property, or stores, which passed between them during the late war, on such principles as shall be deemed equitable and just, and render an account of such settlement to the next legislature," we have the honor to submit the following

### REPORT:

From the length of time that had elapsed since the transactions took place, the death, absence, and removal of many of the persons concerned in them, who were possessed of information that would have thrown light upon the subject, and the difficulties that arose in the progress of the settlement and adjustment, it was found impossible to complete the same, and make report to the next legislature, after the passing of the act of assembly, as was therein directed.

The account of the United States against the state of Pennsylvania, consisting of arms, accoutrements, camp-equipage, and military stores of almost every description, amounting in value to several hundred thousand dollars, will be found among the papers accompanying this report, designated in the settlement, as "General abstract, B," and here referred to as "Number one, R."

The issues of which the same was made up, are herein referred to, thus, "Abstract number one, U. S. referred to in general abstract B"—"abstract number two, U. S. referred to in general abstract B," and so on to number eleven inclusive. Regular vouchers were in most instances produced, supporting the items of charges, as the officers of the general government usually took duplicate receipts, for all articles issued to the executive or other officers of the state. On the part of the state, but few legal vouchers could be found, and hence we had to procure by affidavits and otherwise, such documents as would enable us to make an adjustment and settlement "on such principles as might be deemed equitable and just." Letters were written to all such persons as could be found, who were charged with having received articles from the United States, with a request that they would state what became of the property they had received. But few satisfactory answers were obtained. A system of accountability seemed never to have been thought of, by many of those who had the charge of property.

The whole accounts and vouchers of the state, together with such information as had been obtained, as already stated, were put into the hands of the Adjutant General, as the subject matter seemed more particularly to belong to his office. As, however, lieut. Thomas the U. S. officer, who had been entrusted with the settlement, and who had become thoroughly acquainted with the accounts—arranged the numerous vouchers, &c. had left this state, in October, 1824, nothing could be done in relation to the settlement, until his return from the state of Missouri in the month of January, 1826. On his arrival at Washington, the Adjutant General immediately proceeded to that place. A minute and tedious investigation and examination of all the accounts, vouchers, &c. which could be found in the war department, were then had. After having made some progress, an adjournment took place, and the United States officer agreed to resume the business in February following, at Lancaster. In pursuance of this arrangement lieut. Thomas attended, and after considerable time spent in the investigation, a settlement of the whole accounts was agreed upon, and drawn up in writing, which being submitted to the Auditor General, was by him approved and was signed at Harrisburg by the agents of each government, on the 24th February, 1826. The account thus adjusted was immediately forwarded by lieutenant Thomas to the war department, for ratification. The particulars of this settlement, which resulted so advantageously to the interests of the state, will appear by the accompanying papers, viz: "Number two, R," being the "settlement;" "Number three R," designated in the settlement as "general abstract A," being the amount of arms and other military property found on examination chargeable to the state of Pennsylvania; "Number four R," designated in the settlement as "general abstract C," being the amount of arms and other military property, found on examination chargeable to the United States, together with "abstract number 2, Pa," and "number 3

Pa," therein referred to. And "number five. R" designated in the settlement, as the "account current," and showing the balances found due to each respectively.

After having waited a considerable time for the ratification of this settlement by the government of the United States, we were on inquiry informed by the ordnance department, that the accounts and vouchers had been submitted to the third auditor of the treasury, "who had made a voluminous report to the Secretary of War, extending to forty or fifty pages of remarks," and that "a re-examination of all the vouchers, by both parties, appeared to be necessary before a final adjustment of the account could be made;" and for this purpose it was suggested that we should attend at the city of Washington. Finding that the settlement could not otherwise be effected, we both went to the city of Washington and on the 19th day of July, 1827, an adjustment and settlement were agreed on, and approved by the government of the United States. This settlement, which, owing to the discovery of new matter, differs in some trifling particulars from that agreed on at Harrisburg on the 24th February, 1826, shows the balance of articles found due to the United States, from the state of Pennsylvania, as well as the balance of articles found due to the state of Pennsylvania, from the United States; and among the accompanying papers is designated and referred to, as "number six. R."

The manner in which this old business has been settled, after much labor and pains, is respectfully submitted to the legislature, under the expectation that it will meet their approbation.

Very respectfully,

G. B. PORTER,  
*Adjutant General, Pa.*

DAVID MANN,  
*Auditor General.*

*Harrisburg, April 20th, 1829.*

## GENERAL ABSTRACT. B.

### *Number 1. R.*

Abstract No. 1, issued by H. Johnson, at fort Fayette. Pennsylvania, to sundry officers, Pennsylvania militia;

muskets complete,	774	rifle and pistol flints,	100
cartridge boxes,	1093	rifle pouches,	24
cartridge box belts,	1093	lead, lbs,	970
bayonet scabbards,	298	horsemen's swords,	16
bayonet scabbard belts,	298	augurs,	18
gun slings,	298	gimblets,	12
tents, common	124	blankets,	601
wall tents,	45	stocks,	106
setts of tent poles,	169	coats,	51
camp kettles,	114	yards rope,	100

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mess pans,	116	piut measures,	4
falling axes,	156	nails, lbs	20
shovels,	46	grindstones,	12
canteens,	1643	tomahawk,	1
musket cartridges,	22132	chargers, (rifle)	19
musket flints,	7959	bullet moulds, do	19
ball screws,	363	quires of paper,	52
screw drivers,	363	blank books,	39
brushes and wires,	363	quills,	626
knapsacks,	238	wafers,	626
spades,	46	papers of ink-powder,	9
rifles,	19	horsemen's sword-belts,	16
rifle powder, lbs	403	rifle wipers,	19

No. 2, Issued by H. Johnson, at fort Fayette, Pa. to William Reed, adjutant general Pennsylvania militia.

cartridge boxes,	500	canteens,	1000
cartridge box belts,	500	musket cartridges,	10000
tents, common	690	knapsacks,	200
wall tents,	34	lead, lbs	300
setts of tent poles,	724	fascine hatchets,	22
camp kettles,	630	musket powder, lbs	500
falling axes,	498	gallon tin pans,	1069

No. 3, Issued by J. Swearingen, fort Fayette, Erie, to sundry officers Pennsylvania militia.

tents, common,	190	spades,	39
wall tents,	4	quires of paper,	96
setts of tent poles,	194	blank books,	12
camp kettles,	153	quills,	2000
falling axes,	40	wafers,	2000
musket cartridges,	18370	papers of inkpowder,	12
musket flints,	3000	gallon tin pans,	340

No. 4, A. R. Woolly, fort Fayette, issued to William Reed, adjutant general Pennsylvania militia.

400 muskets complete.

No. 5, Issued by A. R. Woolly, fort Fayette, to brigade inspector M'Lelland, Pennsylvania militia.

206 canteens.

No. 6, Issued by G. Ingles, Philadelphia, to Colonel Rush, Pennsylvania militia.

tent mallets	39	musket cartridges	981
common tents	15	haversacks	327
wall tents	3	spades	12
tent flies	1	pick axes	4
setts of tent poles	21	bell tents	3
tent pins	394		

No. 7, Issued by Secretary at War, (James Monroe, Esq.) deposited in the state arsenal at Philadelphia.

muskets complete	3250	screw drivers	120
ball screws	130	brushes and wires	1000
musket wipers	1000		

No. 8, Issued by the Secretary at War, (John Armstrong, Esq.) to General Eyster, Pennsylvania militia.

500 muskets complete.

No. 9, Issued by G Hackett, Carlisle, Pa. to sundry officers, Pennsylvania militia.

muskets complete	2858	canteens	930
cartridge boxes	1081	mnsket cartridges	104000
cartridge box belts	1081	musket flints	20000
camp kettles	40	knapsacks	1719
felling axes	200	pistol cartridges	756

No. 10, Issued by John M Taylor, Philadelphia, to sundry officers Pennsylvania militia.

three lb strap shot	88	travelling carriages	2
do case shot	55	6 lb case shot	78
rammers	13	6 lb strap shot	124
sponges	13	cylinders	150
ladles	7	powder horns	438
worms	7	gunners' belts	12
water buckets	66	do hammers	12
pairs of trace chains	60	do pincers	12
pairs of breast chains	56	do priming wires	24
quoilers	40	do gouge bits	12
cruppers	30	do gimblets	12
back and belly bands	83	do drifts	12
chain pipes	120	cannon spikes	24
blind-halters	66	budge bbls	2
collars	66	trail handspikes	8
pairs hames	68	setts men's harness, i. e.	
artillery saddles	33	bricoles	48
4 lb strap shot	100	5½ inch shells	72
do grape shot	125	fuzees filled	80
lanterns	16	fuze drifts	1
lead aprons	18	lint stocks	20
sheep skins	6	port-fire stocks	19
flannel cartridges empty	4298	cannon powder, lbs	3300
tarpaulins	26	muskets complete	4422
gunners' haversacks	18	cartridge boxes	2306
rope, pounds	5394	cartridge box belts	2384
saltpetre, pounds	3	bayonet scabbards	2349
nose bags	192	bayonet scabbard belts	2189
halters	173	gun slings	3920
6 lb brass cannon	2	tent mallets	275
limbers	8	common tents	1006

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wall tents	120	combs, curry and mane	112
tent flies	120	English muskets, no bay'ts	106
sets of tent poles	1124	French do complete	116
tent pins	17033	hatchets	102
camp kettles	1094	bugles	4
mess pans	700	pistol cartridges	1200
felling axes	415	marquees	1
axe slings	252	pairs of pistols	57½
axe helves	303	swords, brass mounted	4
shovels	315	gridirons	3
canteens	6779	frying pan	1
cannisters empty	40	dragoon saddles	100
musket cartridges	163990	valices	100
musket flints	27127	valice pads	100
ball screws	287	pairs holsters	100
musket wipers	2001	pairs holster caps	106
screw drivers	447	sircingles	100
brushes and wires	6294	map case	1
haversacks	2181	bridles	100
knapsacks	3425	fascine hatchets	17
spades	168	handles, hatchet, pick, &c	17
pick axes	154	caissons	5
sergeants' swords	245	tube boxes	3
sword belts	244	horsemen's swords	96
drums	39	horsemen's cartridge boxes	
do sticks, pairs	39	and belts	96
do slings	39	thumb stalls	12
do cases	39	5½-inch case shot	52
fifes	38	6 lb grape shot fixed	75
rifles	1580	6 lb strap shot fixed	54
rifle powder, lbs	841	ammunition carts	2
rifle and pistol flints	3860	horse shoes and nails	570
rifle pouches	421	5½ inch howitzer cartridges	
lead, lbs	3509	filled	50
tin cups	51	tar bucket	1
bell tents	13	6 lb brass cannon, mounted	
bell tent poles	13	complete	2
drag ropes prs	7	5½ in. brass howitzer do.	2
slow match, lbs	148	4 lb strap shot fixed	17
6 lb grape shot	596	4 lb case shot fixed	50
6 lb round shot	2012	tent	1
tompions	2	musket powder, pounds	325
oil, gallons	3	bill hook	1
tin ladles	10	broad axes	8
tubes, empty	704	sticks of buff ball	9
marline, lbs	8	drum heads	7
twine, lbs	2	12 lb strap shot fixed	140
wrenches	2	12 lb case shot fixed	40
4 lb case shot	25	drawing knives	3
brushes, horse and mane	110	augurs	3



grabbing hoes	4	smiths' chisels	7
4 lb round shot	100	hardie	1
6 lb do do	100	punch	1
loose grape, lbs	1002	compasses	1
shot blocks (sabots)	60	gimblet	1
powder barrels, empty	10	vice	1
sadlers' buckles, gross of	48	smiths' bellows	1
instructions for infantry	8	anvil	1
tent poles, ridge	2	planes	3
pairs of tongs	4	padlocks	1
files	3	pounds of iron	12
poker	1	bushels of coal	1
slice, smith's	1	screw stocks and taps	1
scraper	1	farriers' hook	1
sledges	2	posts and pickets for horses	28
hand hammers, &c	6	mattocks	58
placers and plyers, pairs of	1	lines, lbs of, for halyards	10
buttresses	1	6 lb case shot fixed	91
smiths' knives	2	12 lb grape shot fixed	10
nail tools	3	sticks of port fire	115

No. 11, Issued by T B Rutter, Baltimore, to sundry officers  
Pennsylvania militia.

powder horns	40	shovels	7
muskets complete	370	canteens	1298
cartridge boxes	2838	musket flints	952
cartridge box belts	2838	musket wipers	50
bayonet scabbards	2985	screw drivers	50
bayonet scabbard belts	2985	brushes and wires	200
common tents	9	spades	10
wall tents	9	drums	2
setts of tent poles	18	fire	1
tent pins	881	rifle powder, pounds	146
camp kettles	48	lead, pounds	310
mess pans	78	drum heads	40
felling axes	7	muskets, damaged	17

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## Abstract No. 2. U. S.

*Referred to in general abstract B.*

Abstract of issues made to William Reed, adjutant general Pennsylvania militia, by H. Johnson, at fort Fayette, 1812.

	September 15.	October 2.	Total.
common tents	340	650	690
setts poles	340	350	690
camp kettles	300	330	630
tin pans, gallon	600	469	1069
felling axes	160	330	498
cartridge boxes	500		500
do do belts	500		500
fascine hatchets	22		22
knapsacks	200		200
canteens and belts	1000		1000
lead, lbs	300		300
powder, lbs	500		500
musket cartridges	10000		10000
horsemen's tents		34	34
setts poles		34	34

## Abstract No. 3. U. S.

*Referred to in general abstract B.*

Abstract of issues to Pennsylvania militia, by J. Swearingen, at Erie, Pa. and fort Fayette, 1813.

1813.

15th May, issued to Col. R. Hill,	tin pans,	340
	sheet iron camp kettles,	153
	wall tents,	4
	common tents,	190
	books, company,	12
	quires paper	96
	quills and wafers,	2000
	papers inkpowder,	12
	felling axes,	40
	setts tent poles,	194
	spades,	39
29th May, do do		
30th do issued to J. Dunlap,		
brigade inspector,	musket flints,	3000
	musket cartridges,	18370

25070 cartridges issued to Colonel Hill—no receipt found, and not included in this abstract.

## Abstract No. 4. U. S.

*Referred to in general abstract B.*

Abstract of issues made to William Reed, adjutant general Pennsylvania militia, by A. R. Woolly, at fort Fayette, 1813.

May 30, 1813, 400 muskets complete.

## Abstract No. 5. U. S.

*Referred to in general abstract B.*

Abstract of issues made to Pennsylvania militia, by A. R. Woolly fort Fayette, 1814.

March 19, 1814, issued to William M'Lelland, brigade inspector, 206 canteens and straps.

## Abstract No. 6. U. S.

*Referred to in general abstract B.*

Abstract of issues to Pennsylvania militia, by George Ingles, at Schuylkill arsenal, 1813.

Date, 1814.	No. of vouchers.	To whom issued.	Common tents.	Wall tents.	Bell tents.	Setts tent poles.	Flies.	Tent pins.	Musket cartridges.	Spades.	Pick axes and belves.	Tent mallets.	Haversacks.
May 15,	1	Col. Lewis Rush,	3	2		5		102	981				
"	2	Col. Lewis Rush,	2			2		32		12	4	39	327
June 9,	3	do for T Adkin,	10	1	3	14	1	269					
			15	3	3	21	1	394	981	12	4	39	327

**Abstract No. 7. U. S.**

*Referred to in general abstract B.*

Abstract of an issue made to the state of Pennsylvania, by James Monroe, Secretary at War, October, 1814.

October 4, 1814—No. of voucher, 7—deposited in the state arsenal, Philadelphia, 3250 German muskets complete.

Extract of a letter from James Monroe, Esq. Secretary at War, dated October 4, 1814, to his Excellency, Governor Snyder:

"Twenty-two hundred stands of arms have been sent from Harper's ferry, and afterwards ordered to York. Five thousand have been sent direct to York, under the charge of Major Gordon, who has reported them to General Bloomfield."

Of the 5000 stands of arms sent as above, 3250 were forwarded to Philadelphia, and deposited in the state arsenal, where they now are, never having been taken out of the boxes; they are German arms, and of a peculiar construction.

M. THOMAS, Jr. L. U. S. A.

*U. S. Arsenal, Frankfort, August, 1823.*

**Abstract No. 8. U. S.**

*Referred to in general abstract B.*

Abstract of issues made by order of the Secretary at War, (John Armstrong, Esq.) to brigadier general Eyster, Pennsylvania militia, 1814.

August, 1814, No. of voucher, 1—Issued to brigadier general Eyster, 500 muskets complete.

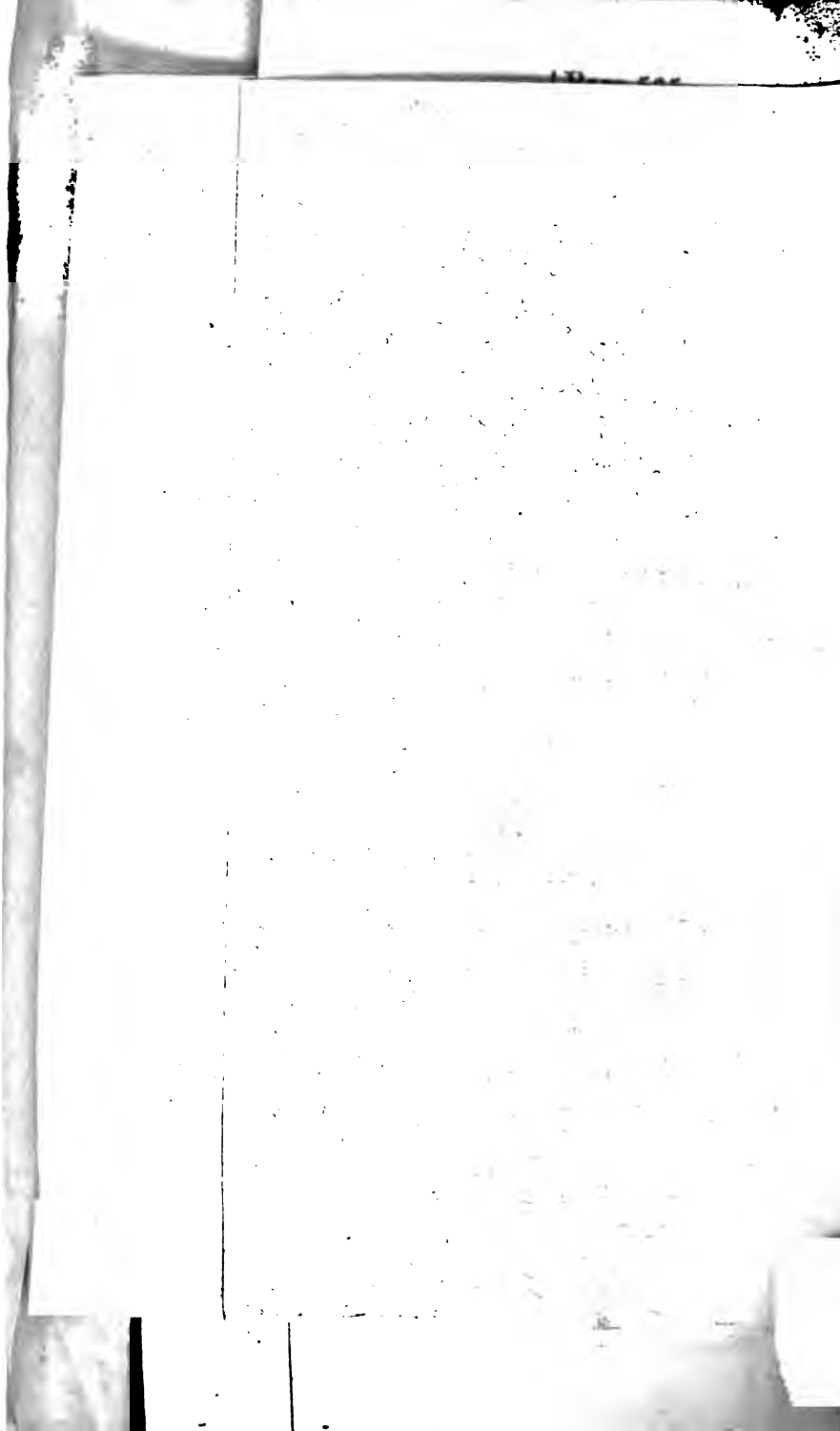




Dragon saddles	
Frying pans	
Gridirons	
Swords, brass mounted	
Marques	
Pairs of pistols	
Pistol cartridges	
Bugles	
Hatchets	
French muskets complete	
Fifes	1
Drum slings	1
Drum sticks, pairs	1
Drum cases	1
Drums	1
Sword belts	11
Sergeants' awards	11









nia militia, by

Horsemen's belts			Horsemen's swords		
Pistol flints			Papers inkpowder		
Wafers			Quills		
Blank books			Quires of paper		
Felling axes			Tin pans		
Iron camp kettles					
8	16	8	8	11	11
11	11	11	11	11	11
11	11	11	11	11	11
86	86	36	11	20	5
			11	82	4
			14		40
			12		52
					3
					52
					39
					626
					626
					9
					100
					16
					16
114	116	167	52	39	626
			52	39	626
					9
					100
					16
					16



Travelling forges	
Prolonges	
Pick axe helvies	
Water kettles	
Sets 4 horse harness	
Sets 2 horse harness	or
Sticks of port fire	
12 pounder grape shot fixed	
6 pounder case shot fixed	
Line, lbs of for halcyards	
Mostron	
12 pounder strap shot fixed	
12 pounder case shot fixed	
Drum heads	
Ball balls, sticks of	

6

7

58

12

9

20



# ABSTRACT No. 9. U. S.

*Referred to in general abstract B.*

Abstract of issues to Pennsylvania militia, by G. Hackett, at Carlisle, 1814.

AND AUDITOR GENERAL.

565

Date, Carlisle.	No. of vouchers	To whom delivered.			
1814					
September 11,	1	C. Shoemaker, A. D. Q. G.	Muskets complete	800	
" 14,	2	F. Hyneman,	Cartridge boxes with belts	800	
" 22,	3	James Lamberton and John Boden, brig. gen.	Canteens	650	
October 2,	4	do do do	Knapsacks	800	40
November 4,	5	do do do	Camp kettles	100	
			Felling axes	100	
			Flints	10000	
			Pistol cartridges	756	
			Musket cartridges	104000	
					756104000
					20000
					200
					930
					1719
					40
					281
					608
					1450
					2858
					1081

## No. 2. R.

*The settlement between the United States and Pennsylvania, 24th February, 1826.*

*Harrisburg, Pa. February 24, 1826.*

Memoranda of a settlement made this day, by lieutenant M. Thomas, on the part of the United States, and George B. Porter, adjutant General, and David Mann, Auditor General, on the part of the state of Pennsylvania, agreeably to the provisions of an act of assembly of Pennsylvania, passed 29th March, 1824, entitled "An act to authorise the settlement of certain accounts between the government of the United States and this commonwealth," of the account of arms and military property which passed between the two governments, from the commencement of the late war until January, 1816, including the quota of arms accruing to Pennsylvania under the act of Congress of 1808, for arming and equipping the whole body of the militia of the Union, from the passage of that law until 1st January, 1816.

On commencing the examination of the vouchers, those of the United States against Pennsylvania were first taken up, and the general abstract marked **B** was examined, of which the following is the result:

*Abstract No. 1.* The issues in this account appear to have been partly to the "twelve months' volunteers," and partly to the militia in the service of the United States; and there being no evidence that any of the property was turned into state arsenals, the same is therefore not chargeable to the state of Pennsylvania.

*Abstract No. 2.* The issues in this account were made to William Reed, adjutant general of Pennsylvania; but it appears that he at the same time issued the property to the militia in the service of the United States; and there is no evidence that any of it was turned into state arsenals—the state of Pennsylvania is therefore not chargeable with it. Remark: In the abstract heretofore furnished by the state of Pennsylvania, of property lost and turned over to United States authorities, the account of Philip Mowry evidently embraces a part of the property issued in the two foregoing abstracts, and a deduction is made in the state account, as will be noticed hereafter.

*Abstract No. 3.* The issue in this account was to militia in the service of the United States, and is not charged to the state of Pennsylvania, as no evidence exists of any of the property having been turned into state arsenals.

*Abstract No. 4.* This was an issue to a state authority, and is considered chargeable to the state of Pennsylvania; but from the deposition of major James Dunlap, and no evidence of the arms ever having been returned to state arsenals, it is believed these arms were issued to militia in the service of the United States, and left at fort Meigs. The charge is therefore not made.



*Abstract No. 5.* This was an issue to militia in the service of the United States; and as no evidence exists of the property having been turned into state arsenals, or delivered to state authorities, it is not chargeable to the state.

*Abstract No. 6.* The same.

*Abstract No. 7.* These arms were sent to York, Pennsylvania, expressly for the state of Pennsylvania, and as there is evidence that they were delivered at the arsenal in Philadelphia, the charge is made against the state.

*Abstract No. 8.* This was an issue to the militia in the service of the United States. The arms have been traced to the hands of individuals in Adams county, Pennsylvania; and General Porter, (the Adjutant General of the state,) will have them collected as far as practicable, and delivered to the United States.

*Abstract No. 9.* This was an issue to the executive of the state, (Governor Snyder) and the whole amount is therefore charged to Pennsylvania.

*Abstract No. 10.* The issues in this abstract, which were made to militia and volunteers in the service of the United States, except such as were returned to the state arsenal, (per major Sharp's account) are not chargeable to Pennsylvania. The issues to major Sharp, keeper of the state arsenal, are chargeable. From the account of the U. S. military storekeeper at Schuylkill, it appears that a part of the property in this arsenal was returned to that depot; and from the statement of general Cadwallader and others, it is believed that the greater part was so returned. From the losses of military property incurred by the state of Pennsylvania, at this period, (see major Sharp's return) there is reason to believe that a portion of this property, issued by the state to the militia and volunteers, was turned into the U. S. arsenal, and the state is credited accordingly.

*Abstract No. 11.* The issues in this abstract were to militia and volunteers in the service of the United States, and the state is not chargeable. NOTE: Many of the articles were returned to the United States arsenal at Baltimore, per T. B. Rutter's account, 3d and 4th quarters, 1814.

Major James Dallaby, U. S. ordnance, issued on the Niagara frontier, to the Pennsylvania troops, two hundred and thirty-five stands of arms, and received from them five hundred and forty-six stands. Pennsylvania is charged with the former, and credited with the latter.

The charges noted in the foregoing examination, are made into a general abstract, A, and constitute the whole of the debits in the account against Pennsylvania, with the exception of one thousand stands of arms, believed on the part of the United States to have been issued to Governor Snyder, at Philadelphia, by Callender Irwin, commissary general U. S. army. If, upon examination, vouchers should be found, proving that such issue was made, and not included in abstract No. 10, it is here understood that such charge will be admitted by the state of Pennsylvania.

The general abstract C, constitutes the only debits against the United States, on the part of the state of Pennsylvania, and is composed of the following, viz.

*Abstract No. 1.* The quota of arms which the state is entitled to receive under the act of Congress of 1808, for arming and equipping the militia, from the passage of that law until January, 1816, is stated by the ordnance department of the United States to be eight thousand five hundred and twenty-nine stands. This number is charged against the United States.

*Abstract No. 2.* The charge here made against the United States is for arms and public property belonging to the state of Pennsylvania, lost by the militia and volunteers when in the service of the United States, or turned into United States depots; being a part of the same property contained in an abstract made out by George Bryan, Esq. formerly Auditor General of Pennsylvania. So much of this abstract as is not covered by Philip Mowry's account, is admitted as a proper charge against the United States. Of the property contained in his account, turned into the United States store house at Buffaloe, it is evident that the greater part had been previously received from the United States at Pittsburg, (per Johnson's issues, see No. 1 and 2,) and no charge is made against the state for the same; consequently this property is deducted from the said abstract, and the residue is charged against the United States.

*Abstract No. 3.* On examination of the account of major Sharp, so much of the property as was issued to the militia and volunteers in the service of the United States, and not returned to the state arsenal, was admitted as a charge against the United States, and is charged accordingly.

On these principles the account current is stated, and it is understood that the balances on either side are to be paid in kind, if practicable; and if not, then a fair valuation to be made, and the amount to be carried to the account for arming the militia, under the act of Congress of 1808: it being understood that the articles which are to be paid in kind, will be of the same fabric and quality as of the period when these transactions took place, (1812 to 1815.)

M. THOMAS,

*Lieut. U. S. army,  
On ordnance duty.*

DAVID MANN,

*Auditor General.*

G. B. PORTER,

*Adjutant General, Pa.*

Abstract No. 2, Pa. Arms and other public property, belonging to the state of Pennsylvania, lost during the late war, or turned over to United States authorities.

Stands of colors,				2				2
Drums,				3				3
Grindstones,				8			8	
Screw augurs,				15			15	
Haversacks,				25				25
Shovels,				49	20		46	20
Spades,								3
Pick axes,				9				9
Axes,				141			141	
Canteens,				417				8
Horsemen's tents,				23			23	
Wall tents,				6				6
Common tents,				490			440	50
Mess pans,				622			536	86
Camp kettles,				348			314	34
Cartridge boxes and belts,				719			680	39
Bayonet scabbards and belts,				215				215
Rifles,				32				32
Muskets,				1275			814	461

Amount of abstract of George Bryan, Esq.  
 Amount deducted therefrom, as having been previously received of the U. S. at Pittsburg—(see Johnson's issues),

Amount now charged against U. States,

We have examined the account made out by George Bryan, Esq. Auditor General of Pennsylvania, and compared the same with the vouchers, and also with the abstracts of issues Nos. 1 and 2, of Johnson at Pittsburg, from the United States fort; from which it would appear evident, that of the property turned into the United States storehouse at Buffalo, by Philip Mowry, a considerable part of the same had been given out by the United States, and is not charged to the state: consequently a deduction is made from the abstract of Mr. Bryan, as will appear above; and the articles in the lower line of this abstract are found to be a proper charge against the United States.

M. THOMAS, Lieut. U. S. Army, on ordinance duty.  
 GEORGE B. PORTER, Adjutant General, Pa.

Lancaster, February 21, 1826.

## Abstract No. 8, Pa.

Abstract of the amount of property belonging to the state of Pennsylvania, issued out of the state arsenal in Philadelphia, during the late war; by Daniel Sharp, to militia and volunteers in the service of the United States, which was not returned to the state. Date, 1814.

*Per Daniel Sharp's account.*

bayonet scabbards and belts,	1677
cartridge boxes and belts,	1604
wipers.	2835
screw drivers,	421
brushes and wires,	1950
pouches and horns,	241
mess pans,	281
water buckets,	187
common tents,	488
wall tents,	17
tent poles,	826
tent pins,	7647
canteens,	140
knapsacks,	1028
spades and shovels,	30
hedges,	54
saws,	7
adzes,	2
hatchets,	7
tinder boxes,	22
powder measures,	7
tin buckets,	6
lanterns,	18

We have examined the account furnished and sworn to by Daniel Sharp, brigade inspector, and keeper of the state arsenal at Philadelphia, of the issues and receipts to and from the militia and volunteers of Pennsylvania, (in the service of the United States,) at that arsenal during the late war, and find the articles in the above abstract to be the balance in favor of the state of Pennsylvania.

M. THOMAS,  
*Lieut. U. S. army,*  
*On ordnance duty.*

G. B. PORTER,  
*Adjutant General, Pa.*

Lancaster, Pa. February 21, 1826.

**AND AUDITOR GENERAL.**

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**No. 5. R.**

Account current of arms and military property, which passed between the United States and the state of Pennsylvania, from the commencement of the late war, until the first day of January, 1816, exhibiting the balances due to each, as settled this twenty-fourth day of February, 1826, by Lieut. M. Thomas, United States army agent on the part of the United States, and General G. B. Porter, Adjutant General and David Mann, Esq. Auditor General of the state of Pennsylvania, on the part of the state.

Tent pins,		69347			
Bell tents,		7647			
Wall tents,		55823	53823		
Common tents,		344	25	20	
Haversacks,		1719	925	319	
Knapsacks,		2930	1481028	691	
Canteens,		66	2782		
Pans, skillets, &c.		367		367	
Mess pans,		640	34	606	
Camp kettles,			421		421
Screw drivers,			241		241
Pouches and horns,			1950		1950
Brushes and wires,			2835		2835
Wipers,					562
Cartridge boxes and belts,	1081	1643			1892
Bayonet scabbards and belts,		32			1348
Rifles,	7248	9889			2646
Muskets,					
	Amount of U. S. account,				
	do state account,				
	Balance due to U. States,				
	Balance due to Pennsylvania,				



## REMARKS.

The 3050 German muskets in the state arsenal at Philadelphia, will be exchanged by the United States for those of a better fabric, agreeably to the order of the ordnance department in January last.

It is understood that the 1000 rifles in the same arsenal, will be exchanged in like manner; and if more of the same fabric were received from the United States, than the 1000 received by major Sharp at Philadelphia, they will also be exchanged by the United States.

The five and a half inch brass howitzers in the state arsenal, which are the property of the United States, and all the harness and equipments in the same arsenal, belonging to the United States will be returned to the United States.

With respect to the number of rifles—it appears that 1380 only were issued to Pennsylvania, and those returned to the state arsenal at Philadelphia, above that number, it is believed were state rifles, as the state had many rifles; and colonel Humphreys, who turned in many rifles to the state arsenal, drew none out of it. 1380 only are charged to Pennsylvania.

Settled this 24th day of February, 1826, and the above balances acknowledged to be correct, and due and owing to the respective parties.

M. THOMAS, *Lieut. U. S. army,*  
*On ordnance duty.*

DAVID MANN, *Auditor General.*

G. B. PORTER, *Adjutant Gen'l, Pa.*

## No. 6. R.

## Recapitulation—as corrected July 19, 1827.

*Balance due to the United States from the state of Pennsylvania.*

1348 rifles,	26 mallets
653 camp kettles,	100 strapped shot
66 pans, skillets, &c. (labor- atory)	100 4 pounder round shot
2790 canteens	100 6 do do
691 knapsacks	1002 lbs loose grape shot
344 haversacks	20 swords
80 common tents	60 scalping knives
6 bell tents	3 bugle horns
1700 tent pins	20 axe slings
32 files	5 wall tents
207 axes,	1 marquee

574 REPORT OF ADJUTANT AND AUDITOR GENERALS.

*Balance due to the state of Pennsylvania from the United States.*

2573 muskets	29 spades and shovels
1855 bayonet scabbards and belts	54 ladles
477 cartouch boxes and belts	7 saws
2835 musket wipers	2 adzes
1950 brushes and wires	7 hatchets
241 pouches and horns	22 tinder boxes
420 screw drivers	7 powder measures
274 mess pans	6 tar buckets
195 tent poles	18 lanterns
187 water buckets	3 drums
	2 stands of colors.

The balances as above corrected are hereby agreed to, on the part of the state of Pennsylvania,

DAVID MANN,  
*Auditor General.*

G. B. PORTER,  
*Adjutant General, Pa.*

*Washington, July 19, 1827.*

The above account, as now corrected, is believed to be correct, and its approval is recommended by this department.

G. BOMFORD, *B't Col.*  
*On ordnance service.*

*Ordnance Department, July 19, 1827.*

Approved, in the absence of the Secretary at War.

CH. J. NOURSE,  
*Chief clerk.*

*War Department, July 19, 1827.*



IN THE SENATE, APRIL 21, 1829.

The Speaker laid before the Senate a letter from the Adjutant General, accompanied with a report of the exchange and final settlement of the balances of arms and other military property found due to the United States on the one hand, and the state of Pennsylvania on the other hand, agreeably to the settlement made with the general government, under the act of Assembly passed the 29th March, 1824, which were read as follow, viz.

*Harrisburg, April 21st, 1829.*

SIR, I herewith present, for the information of the Senate, a report of the exchange and final settlement of the balances of arms and other military property, found due to the United States, on the one hand, and the state of Pennsylvania on the other hand, agreeably to the settlement made with the general government, by the Auditor General and myself, under the act of assembly passed the 29th March, 1824.

I have the honor to be,

Very respectfully,

Your obedient servant,

G. B. PORTER,

*Adjutant General, Pa.*

HON. DANIEL STURGEON,  
*Speaker of the Senate.*

*To the Honorable the Senate and House of Representatives of the commonwealth of Pennsylvania.*

The report submitted to the legislature by the Auditor General and myself, of the settlement made with the government of the United States for arms and other military property and stores, which passed between the general government and that of this state, during the late war, exhibits the state of the account as finally adjusted and settled, and the balance of articles due to each respectively.

As, however, the terms of the settlement were, "that the balances on either side were to be paid *in kind*, if practicable; and if not, then a fair valuation to be made, and the amount to be carried to the account for arming the militia, under the act of Congress of 1808," it becomes my duty to make report of the manner in which these balances have been finally liquidated, paid, adjusted and discharged.

Since the time of making the settlement, a difficulty arose in effecting an exchange of the articles found due to each government respectively, in consequence of the bad condition and state of repair of the rifles in our arsenal at Philadelphia: and although, by the act of the 10th April, 1826, provision was made for having

these rifles as well as the German muskets, "repaired and cleaned, and put in a condition to be exchanged for other arms of the United States;" yet I wished, if possible, to save this expense to the state. Having, after numerous applications by letter and in person, previously prevailed on the ordnance department of the United States to take the German muskets as they were, I made exertions to get the rifles off in the same way; and I am pleased to have it in my power to state, that on visiting the War Department lately, (viz. on the 9th of March last,) I obtained the consent of Colonel Bounford, the superintendent of the ordnance department, that these rifles might be delivered in their present condition; by which the expense of cleaning and repairing the 1348 rifles and 3050 muskets, which would have amounted to between five and six thousand dollars, has been saved to the state.

I have just returned from the city of Philadelphia, having, on the 15th of April inst. effected an exchange, delivery, and final settlement with Capt. Mellon, the officer in command of the U. S. arsenal at Frankfort, who had been authorised to attend to the same, of the balances due to each government, according to the corrected settlement agreed on at Washington, on the 19th July, 1827; as, by the accompanying paper, signed by Capt. Mellon, on behalf of the United States, and myself on behalf of the state, will more particularly appear.

Although not immediately connected with the duty assigned by the act of assembly, under which this settlement was made by us, yet it may not be improper to add, that I have ascertained at the ordnance department, that, after deducting the arms mentioned in this settlement, as well as all those which have been received since the 1st January, 1816, for the use of the volunteers of the state, and exclusive of the quota of arms to which the state may be entitled, under the apportionments to be made for the years 1828 and 1829, which have not yet been declared, there were, on the 9th of March last, due to the state 14117 muskets, which the ordnance department of the United States are ready and anxious to deliver, in such kinds of arms and accoutrements as may be designated, equivalent to this number of muskets. Under the belief that the present legislature would authorise the issue of swords and pistols to cavalry, which would make it necessary to receive, in these articles, a part of the quota coming to us, nothing has yet been done with respect to the receipt of these arms. So soon as the determination of the legislature is known, measures will be taken to have the kinds of arms which the military service of the commonwealth requires, designated and placed in the state arsenals. Provision should, however, be made by law to defray the expenses of the person who may be appointed to select these arms, as well as the costs of bringing them from the United States arsenals; and a sufficient compensation should be allowed to the keeper of the state arsenal at Philadelphia; where the greater part of them will be deposited, for taking care of them, as well as the

other valuable property now under his care. His salary is too small to warrant that devotion of his time to the duties of the situation, which the interests of the commonwealth require.

Very respectfully,

G. B. PORTER, *Adjutant Gen. Pa.*

Harrisburg, April 20, 1829.

Agreeably to the settlement made and approved the 19th day of July, 1827, between the government of the United States and the state of Pennsylvania, for arms, military property, &c. which passed between them from the commencement of the late war until 1st January, 1816, the balances of articles due to the United States from the state of Pennsylvania on the one side, and the balances due to the state of Pennsylvania from the United States on the other side, were to be paid in kind, if practicable; and if not, then a fair valuation to be made, and the amount to be carried to the account for arming the militia, under the act of Congress of 1808. The articles to be paid in kind to be of the same fabric and quality as of the period when the transactions took place, (say from 1812 to 1815). In pursuance of which, the following exchange of property and settlement of the balances due on either side, have this day been made by the undersigned officers of the two governments, viz.

Of the balances due from Pennsylvania to the United States, the following have been delivered at the U. S. arsenal, near Frankfort:

1348 rifles,	6 wall tents } called 5 wall,
653 camp kettles,	with flies } tents and one
2790 canteens,	marquee in the settlement
691 knapsacks,	26 wallets,
344 haversacks,	100 strap shot,
80 common tents,	200 round shot for 4 and 6 p'rs,
32 flies,	1002 lbs loose grape shot,
4 bell tents } equal to 6 bell	20 swords,
2 wall tents } tents as called	48 scalping knives,
with flies, } for in settle'nt	20 axe slings.

Of the remaining articles due to the United States, sixty-six pans, skillets, &c. have been deducted from the item of 274 mess pans, due to the state of Pennsylvania; leaving that number but 208; and the 1700 tent pins due to the United States, are considered equivalent to, and consequently balanced by, the item of 195 tent poles, due to the state of Pennsylvania. The remaining articles due to the United States, which it is not in the power of the state of Pennsylvania to pay in kind, are

207 axes, valued at one dollar each,	207 00
12 scalping knives, valued at 20 cents each,	2 40
3 bugle horns, valued at 7 dollars each,	21 00

Amounting altogether to the sum of

230 40

Of the balances due from the United States to the state of Pennsylvania, the following have been delivered at the state arsenal, Philadelphia:

1000 good muskets complete, in lieu of the 2573 called for in the settlement, which are considered equivalent to 2573 of the fabric of 1812,	2835 musket wipers,
800 bayonet scabbards and belts	1950 brushes and wires,
	84 pouches and horns,
	7 saws,
	6 tar buckets,
	18 lanterns.

Of the remaining articles due to the state of Pennsylvania the 195 tent poles are considered equivalent to, and consequently balanced by, the 1700 tent pins due to the United States; and the residue due to the state, which it is not convenient for the United States to pay in kind, are:

1055 bayonet scabbards and belts, valued at 60 cts each,	633 00
477 cartridge boxes and belts valued at \$1 25 each	596 25
157 (241 less 84) pouches and horns at 75 cents each	117 75
420 screw drivers valued at 7 cents each	29 40
208 (274 less 66) mess pans valued at 25 cents each	52 00
187 water buckets valued at 50 cents each	93 50
29 spades and shovels valued at 80 cents each	23 20
54 ladles valued at 35 cents each	18 90
2 adzes valued at \$1 20 each	2 40
7 hatchets valued at 50 cents each	3 50
22 tinder boxes valued at 25 cents each	5 50
7 powder measures valued at \$7,	7 00
5 drums valued at \$7 each	21 00
2 stands of colors valued at \$100 each	200 00

Making altogether the sum of	\$1803 40
From which deduct the amount due to the United States as above stated,	230 40

Leaving the balance due to the state of Pennsylvania,	\$1573 00
Which amount, thus ascertained at a fair valuation as aforesaid, has been liquidated and settled by the delivery at the state arsenal of 121 muskets complete, at the present price or valuation of 13\$ each,	<u>\$1573 00</u>

In this way the whole of the said balances, as ascertained in the settlement first above stated, have been finally settled, liquidated and discharged.

C. MELLON, *Bt. Capt. U. S. army,*  
*On behalf of the United States.*

G. B. PORTER, *Adjutant General, Pa.*  
*On behalf of the state of Pennsylvania.*

*U. S. Arsenal, Frankfort,*  
*April 15, 1829.*

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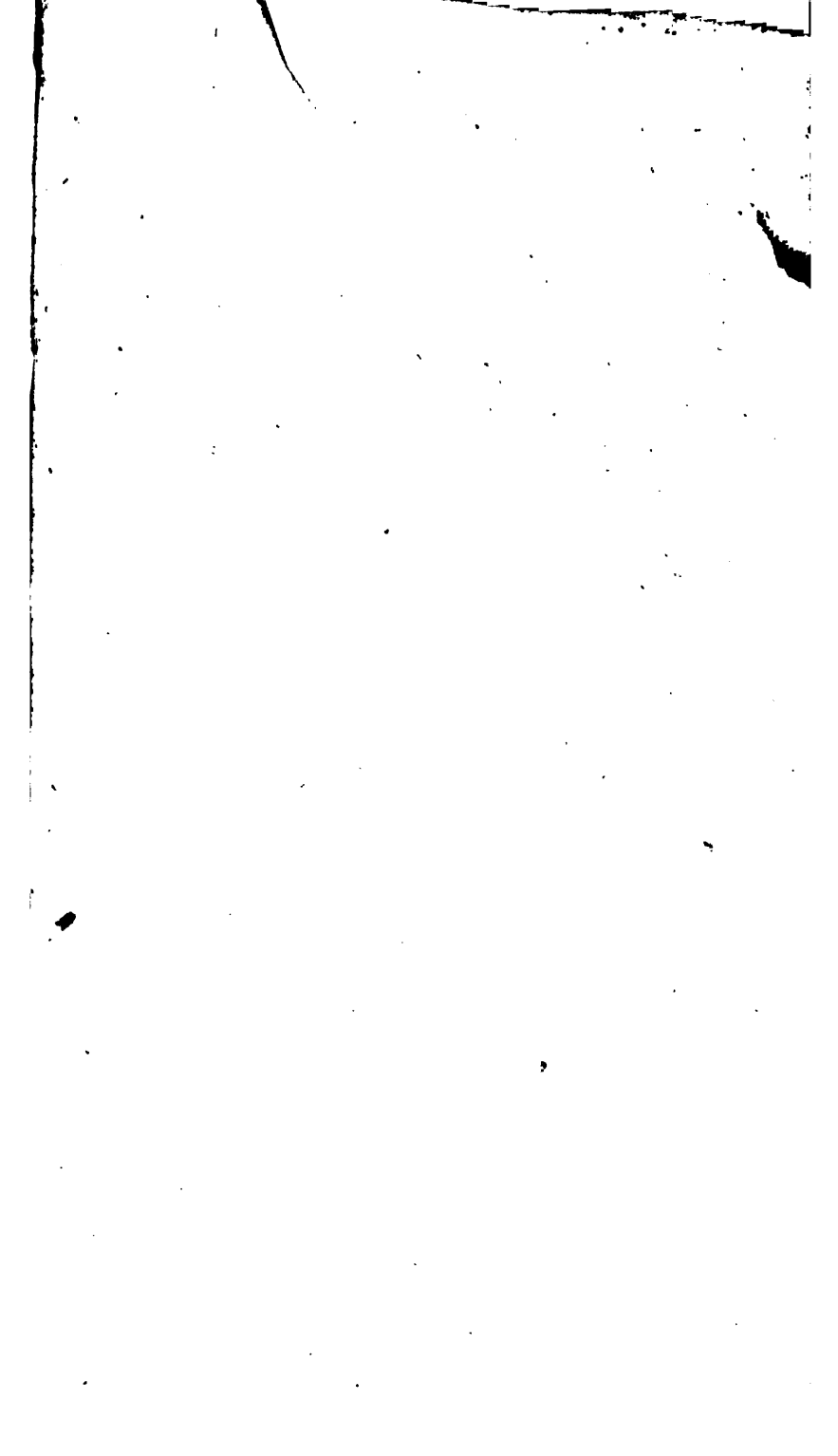
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